

# FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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## Flight.

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## EDITORIAL COMMENT.

**The "X" London Air Raid.** So the long-promised visit to London by Germany's aircraft has at last materialised as a result of the long series of practice voyages which have been systematically carried out by the Zeppelin "high command." And with the usual result, so far as the attainment of the slightest military object is concerned. The bag amounts to just one infant, one boy, one man, and one woman killed, besides a comparatively unappreciable amount of damage to private property. To accomplish this, if accounts be correct, it took a quartet of airships and an expenditure of some 90 bombs, there or thereabouts. Hardly a creditable balance sheet to put before "William the Poisoner," if he and his satellites can appreciate that the ghastly panic of the British public, which is so persistently described and disseminated by the Woolf Press Lie Bureau, is absolutely non-existent. Yet with the usual calm complacency, the official announcement per German wireless from Berlin is:—

"By way of reprisals for the bombardment of the open town of Ludwigshafen we last night dropped bombs on the workshops and docks in London."

That we cannot pursue the subject in detail is obvious,

by reason of the notice issued from our British Press Bureau, in which it is intimated that:—

"No statement whatever must be published dealing with the places in the neighbourhood of London reached by aircraft, or the course proposed to be taken by them, or any statement or diagram which might indicate the ground or route covered by them.

"The Admiralty *communiqué* is all the news which can properly be published.

"These instructions are given in order to secure the public safety, and the present intimation may itself be published as explaining the absence of more detailed reports."

Needless to say, FLIGHT not only appreciates this new move of the Censor's office, but applauds it most heartily, although we think, to allay natural anxiety, a more speedy announcement as to killed, &c., should be officially made. It is a very important step in the right direction, and is one that should have been in force from immediately after the first visit to these shores of units of the enemy air fleet. The Censor's present procedure in this connection appears to be generally approved—except, perhaps, in the usual channels of discontent, which quarrel with everything that curtails the liberty to saturate the public with "horrible" details. In the pages of FLIGHT the unwisdom of giving much vital information to the raiders as to their whereabouts has been repeatedly pointed out. Each visit of these air-pirates has, so far as was in their power, been at a wider radius, until by degrees they have learnt to recognise from above, landmarks to guide them for more extended excursions, culminating in their long-cherished hopes of scaring the inhabitants of London in the very centre of their much-loved capital of the world. How far they have attained their end by their first trip may be generally judged by the universal attitude of indifference of the public. Even when the Germans send over further units of their air fleet to do their worst, we fancy they will find that the only effect that matters will be to give that further impetus to recruiting, which will quickly bring into the ranks the best of those who, for various good reasons, may have been holding back from actually joining up for the fighting line. The reason why the Germans do not appreciate the real effect upon the public may possibly be found in the fact of the hugeness of the Metropolis.

Of the seven and a half millions of people who live in Greater London—the police area—even of the four and a

half millions who live in the 120 square miles of inner London, the County Council area—perhaps not one in a thousand knew before sunrise that the City had been under bombardment the night before. So vast are the distances of the Capital; and so comparatively trivial the efforts of an air fleet.

So far as the new procedure of the Censor's office is concerned in placing an embargo on any information likely to be of advantage to the enemy in further raids which they may contemplate, we think FLIGHT may in some measure claim responsibility for its being put into force, as from time to time, as we have already said, we have ventured to question the wisdom of detailed publication of the places reached by the dirigibles, and finally, on April 23rd, in the course of our Editorial Comments on Germany's airfleet raids—particularly in that instance dealing with the Tyneside and Essex visits—we wrote as follows:—

"One very important point should not be missed. In the recent visits all the known facts point strongly to the probability that the pilots had lost their bearings both up north and during the Essex raid. In throwing their bombs upon Maldon there can be little doubt, in spite of German explanations to the contrary, they thought they were aiming at a totally different objective. In the final result they have no means of knowing how far they were out in their reckoning and where they went astray, except from information supplied through reports and statements from this side. And the pity of it all. We are not too enamoured of some of the procedure of the Censor's department, although fully acknowledging the importance of such a corrective to irresponsible publication of 'news,' but if there be any justification for this department's existence, it should surely take steps to see that all details of places affected and localities visited by these aircraft should be most carefully suppressed. It is only by this means that the 'experience' which is sought by the dirigible pilots can be countered, and be their excursions never so many, they will probably still remain as ill-informed of how to recognise their whereabouts from above, and thus, when at last 'the day' (or night) arrives for the epoch-making attack upon England's

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## The Roll of Honour.

THE following have been reported by the Secretary of the Admiralty:—

Under date May 9th:

### Slightly Wounded.

Sub-Lieutenant Herbert F. Melville, R.N.V.R.,  
Armoured Car Division.

Under date June 1st:

### Killed.

Flight-Lieutenant Douglas M. Barnes.

### Slightly Injured.

Flight Sub-Lieutenant Benjamin Travers.

The following have been officially announced by the War Office:—

Under date May 13th:

### Died.

1,813 1st Class Air-Mechanic Hamley, S.S.

Under date May 21st:

### Killed.

Second Lieutenant J. A. Johnstone, Royal Field Artillery.

Under date May 22nd:

### Died of Wounds.

Captain H. C. Macdonnell, R. Irish R., attached R.F.C.

metropolis, the whole adventure must be necessarily largely guesswork, and as likely as not, with all lights out, they may expend their fury harmlessly upon unfortified fields and spaces before they are checked by our own ground anti-aircraft organisation and our fleet of aeroplanes."

We more than ever think our criticism was fully justified, after the events of Monday night, and it is to be hoped sincerely that there will not be an editor throughout the country who will not seek to keep out the slightest indication of the locality of any future excursions by enemy airships, however much he may yearn to give vent to his feelings of importance in having his particular local centre selected, by accident, for bombing fame. Any infliction from the Public Prosecutor could hardly compensate the nation, for the mischief which might accrue to the community at large, by any such indiscretion. By this means, and the absence of all official weather forecasts, the task which the Zeppelins of "William the Poisoner" have before them will not be rendered any the easier.

By way of contrast to the dastardly methods of these cultured folk, the magnificent raid last week by eighteen of our French Allies' aeroplanes, once again stands out in striking relief. By making a bee-line flight 125 miles inland over the enemy's country to Ludwigshafen, with the definite object of blowing up the huge chemical factory of the Badische Anilin und Soda Fabrik, an important and purely military object was sought. For here it is that the major part of the horrible asphyxiating gases which have been so criminally employed against our men in the trenches are manufactured, in addition to vast quantities of explosives. That the French flying officers were highly successful in their undertaking is a reward to them of no mean order, whilst it will remain as an achievement of which for all time they and those concerned may be proud. When, *per contra*, the deeds of the German air pirates come to be chronicled, they will form a black page in the history of the world, which for ever will stand as a disgrace to the Germanic race, and entitle them to be bracketed with the worst barbarians of the past.

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Under date May 23rd:

### Killed.

Lieutenant R. C. H. Bewes, King's (Liverpool Regt.), attached R.F.C.

Second Lieutenant F. H. Hyland, Yorkshire Regt., attached R.F.C.

Under date May 25th:

### Died of Wounds.

Second Lieutenant H. F. Boles, 17th Lancers, attached R.F.C.

Undated:

Previously Officially reported Missing, now Unofficially reported Prisoner of War.

Lieutenant F. H. Eberli, R.G.A., attached R.F.C.

## H.M. the King at Aldershot.

As on his previous visits to Aldershot, H.M. the King on Saturday last again showed his keen interest in the work of the Flying Services, and witnessed several flights by officers of the Royal Flying Corps and pilots attached to the Royal Aircraft Factory at Cove Common. It is stated that some of the machines attained record heights, but no figures have been published.

## The German Aerial Losses.

ACCORDING to advices from Copenhagen, in the last five Prussian casualty lists are the names of 11 aviators killed, 35 wounded, 10 missing, and 1 prisoner.





THE WHITSUN HOLIDAY CROWD AT HENDON AERODROME.—A model of patience, as, unfortunately, the high wind which steadily prevailed prevented all chance of flying. The crowd is suggestive of the old Hendon days, except that the considerable sprinkling of khaki reminds visitors of the reason for the absence of a large number of old habitués.

# AIRCRAFT WORK AT THE FRONT.

## OFFICIAL INFORMATION.

IN the despatch, dated May 30th, from Sir John French, there was the following:—

"Yesterday one of our aeroplanes brought down a German aeroplane in the neighbourhood of Moorslede."

In the despatch, dated May 25th, from an "Eyewitness" present with the British General Headquarters, there was the following:—

"On Thursday, the 20th, more to the north, opposite the centre of our line, the Germans fired a mine without doing serious damage. Still farther north, not far from Ypres, our anti-aircraft guns brought down a hostile aeroplane. It fell headlong on the parapet of the German trenches within sight of the French, and both pilot and observer must have been killed at once. Our Allies, observing that the fallen machine was exciting considerable interest and attention amongst the occupants of the enemy's works, trained some machine guns on the spot and waited events. When sufficient Germans had collected fire was opened upon them from these guns. Another German aeroplane was brought down by the French."

In the despatch dated May 28th, from "Eyewitness," in which the German method of attacking by poisonous gas was described, there was the following:—

"The manner in which such an attack develops with a favouring wind cannot better be described than by the reports of its progress brought in on Monday morning by our aerial reconnaissances. One observer, who crossed the opposing front in this quarter shortly after dawn, reported when he came back that a thick cloud of what looked like smoke outlined the whole of the German trenches. The next observing officer, who arrived some time afterwards, stated that to the west and south-west of the German line he could see a broad band of yellow grass and trees, which looked as if they had been bleached. A third, who came in later, stated that the whole area behind our line was covered by a mist so thick as to interfere with observation."

"On Tuesday (25th) . . . during the night hostile aircraft dropped a few bombs at various points behind our line, but, as usual, no damage was done."

"On Wednesday (26th) . . . they continued to bombard the Ypres area with gas shells, and their aircraft were very active."

In a narrative issued by the Press Bureau on the 27th describing the fighting on the Gallipoli Peninsula from May 6th to 19th, there was the following:—

"On May 17th the 29th Division worked further forward, and established themselves in trenches 200 yards in advance. The Allied artillery was well handled, and, aided by aeroplane observation, destroyed by direct hits a Turkish 6-in. howitzer gun and exploded a wagon load of heavy gun ammunition, also demolishing some new Turkish entrenchments."

In the afternoon *communiqué* issued in Paris on the 20th, there was the following:—

"A German aeroplane, which was flying towards Paris this morning, on meeting the air squadrons of the entrenched camp, threw bombs without any result on Villenoy, near Meaux. The air squadrons of the front, having been warned, awaited the enemy machine on its return. The Aviatik, which carried four bombs, was brought down by one of our machines near Braine in the Soissons district. Both the German aviators were killed."

"Our aeroplanes successfully dropped fifty ninety-millimetre shells on the aerodrome of La Brayelle, near Douai. The sheds and the machines on the ground were struck."

In the evening *communiqué* there was the following:—

"During yesterday our aircraft everywhere showed great activity, and were successful in various bomb-dropping expeditions. They dropped 203 projectiles, of which 82 were large bombs of 10 kilogs. each, and 14 shells of 155 calibre weighing 42 kilogs. each. The efficacy of the explosions was verified at several points, notably at the German aviation dépôt at Hervilly, south-east of Roisel, where a shed and an air machine were set on fire, the German reserve park for aircraft at Grand Triel, north-west of St. Quentin, where a hangar was destroyed, and at the station of St. Quentin, where a petrol store was struck. During the preceding night four shells were dropped on the Station of Douai, and a fire was seen to break out near the goods station."

In the afternoon *communiqué* issued on the 27th it was stated:—

"One of our air squadrons, composed of eighteen aeroplanes, each carrying heavy projectiles, bombarded this morning at Ludwigshafen the chemical factory belonging to the Badische Anilin und Soda Fabrik, now one of the most important factories of explosives in Germany. The results prove the efficacy of the bombardment. Several buildings were struck and fires broke out in many places. The airmen were nearly six hours in the air, and covered a distance of over 248 miles. This expedition against an important military establishment was a retaliation for the German air raid on Paris. The air raid on Ludwigshafen ranks among the most important of the war. The factory which was set on fire is one of the largest of the kind in Germany, and great secrecy has been observed as to the work carried on there during the war. It is reported that large numbers of workmen were drafted into Ludwigshafen some time ago."

The following additional details were officially issued later in the day:—

"Eighteen aeroplanes started out at 3 o'clock this morning to bombard the factories at Ludwigshafen. The Badische Anilin und Soda Fabrik, the most important explosives factory in Germany, occupies the whole of the quarter of Ludwigshafen near Mannheim, and an important annex was recently opened at Oppau, 3 kilometres from Ludwigshafen."

"The aviators dropped 47 projectiles of 90 mm. and 2 of 155 mm. on the first objective, and 36 of 90 mm. on the Oppau factory. All attained their objects. From 6.15 a.m. three enormous fires with yellow smoke were to be seen at Ludwigshafen, and at 6.30 the aviators noticed great masses of smoke enshrouding Ludwigshafen and Oppau."

"The aeroplanes were fired upon, but all save one returned safely. According to the pilots, the missing machine was obliged to descend near Ludwigshafen, and was seen to burst into flames after it had reached the ground. It is believed that the descent, which was doubtless due to the enemy's fire, was made normally, and that the occupants of the aeroplane set fire to it, so that it should not fall into German hands."

"The expedition, which shows the degree of skill and courage developed by the French pilots, is the finest feat of the aerial arm so far accomplished."



In the *communiqué* issued on Saturday evening there was the following :—

"Near Thiaucourt (south-east of Lassigny) we brought down an Aviatik, which caught fire as it fell in front of our lines."

The following official note was issued in Paris on the 25th ult. :—

"At dawn a Voisin biplane was on guard over Paris at a height of 2,500 metres. About five o'clock, on receipt of telephone instructions from the military Government of Paris, five machines took the air in succession, namely, a Maurice Farman machine, a second Voisin biplane, a gun-carrying Voisin machine, and two Nieuports."

"Then an immense letter T in white canvas was stretched over the Bourget ground, the head of the T pointing in the direction where the enemy machine was perceived. The pilot of the first Voisin biplane, hearing the reports of the anti-aircraft guns, and noticing the enemy aeroplane, darted towards the German and pursued him as far as Senlis without being able to overtake him."

"The pilot of the Maurice Farman, who was flying above Paris, hearing the cannonade, returned to the Bourget ground, and, noticing the signal, set off for Senlis, but did not see the enemy. The second Voisin biplane was above the northern district of Paris. He sighted the enemy 100 metres ahead, flying 500 metres above him, and went in chase. His observer opened fire with a machine gun. The pursuit was continued as far as Senlis, but the enemy was not brought down. The other Voisin, while mounting into the air, saw the German at a greater altitude, and opened fire at a 1,000 metres, but did not succeed in getting close enough to make the fire effective, and abandoned the pursuit."

"One of the Nieuports, cruising above Denmartin at a height of 2,000 metres, noticed splinters of projectiles, and at once made for Fontenay in order to cut off the enemy's retreat, but did not arrive in time. He sighted the enemy and pursued him as far as Senlis, without overtaking him."

"The foregoing refers only to the first German machine. The second, which followed ten minutes behind the other, seems to have made a right-about turn shortly after having passed Chapelle en Serval, having doubtless noticed the welcome extended to his leader."

"To sum up, six aeroplanes succeeded, with the indications given by bursting shells, in locating the first enemy machine, but could not overtake it for the purpose of fighting and destroying it."

An official *communiqué* issued from the Italian Army Headquarters on the 25th ult. stated :—

"Everywhere the enemy is retiring, destroying bridges. Our aviators are bombarding the electricity works and the railway station at Monfalcone."

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#### Honour for Brave R.N.A.S. Petty Officer.

FROM the *Court Circular* of the 27th ult. :—

*Buckingham Palace.*

The King afterwards decorated Chief Petty Officer James Hendry, Royal Naval Air Service, with the Albert Medal, second class :

"For gallantry in saving the life of the pilot of aeroplane No. 58, who had been stunned by the premature explosion of a bomb, by extricating him from the sinking wreckage of the machine, after both had fallen some 150 ft. into the sea, on November 19th, 1914, a few miles north of Yarmouth."

#### D.C.M. for R.F.C. Mechanics.

It was officially announced on Thursday morning that His Majesty the King has been graciously pleased to approve of the award of the Distinguished Conduct

In the *communiqué* from the Great Headquarters, issued on the 27th ult., there was the following :—

"During the night of May 26th a squadron of our airships effected a raid into the enemy's territory, throwing bombs on the Trieste-Nabresina line and causing evident damage and apparently an interruption of railway communication. Although subjected to violent rifle and artillery fire, the squadron returned unharmed to our lines."

In a *communiqué* issued by the Italian Naval General Staff on the 28th ult. it was stated :—

"Yesterday the naval dirigible M2 flew over Sebenico and dropped bombs, which struck several of the destroyers anchored in a group at the mouth of the River Buduc. The dirigible was heavily shelled, but without any effect, and returned uninjured."

In a *communiqué* issued by the Great Headquarters on Saturday there was the following :—

"Friuli Frontier.—On the night of May 27th–28th our airships carried out successful raids into the enemy's territory, causing serious damage. A large number of bombs which were dropped hit their mark. Our aeroplanes, which were the target of the enemy's fire, also accomplished their mission."

"On the night of May 27th–28th an enemy aeroplane called Pola was forced to ground near the mouth of the Po di Volano, and was captured."

A note issued by the Italian Ministry of Marine on Saturday stated that an Austrian seaplane was captured on Thursday on the Italian coast. The occupants were taken prisoners.

The *communiqué* issued by the Chief of the Italian Naval Staff on Monday stated :—

"Yesterday evening (May 30th) one of our dirigibles flew over Pola and dropped bombs on the railway station, the petrol dépôt and the arsenal. All the bombs exploded on their objectives, and a great fire broke out in the arsenal. The dirigible was subjected to intense firing from the anti-aircraft artillery, but was not hit at all, and returned uninjured."

The following *communiqué* was issued in Rome on the 1st inst. :—

"An enemy aeroplane appeared this morning over Bari, and another over Brindisi. Bombs were dropped on both towns."

"At Bari, one of the bombs exploded on the roof of a private house, and a child of fifteen was struck by a falling tile, and afterwards died of his injuries."

"Two townspeople were slightly injured in Brindisi, and two private houses were very slightly damaged."

In a note issued later it was stated :—

"The Austrian aeroplane which this morning dropped bombs on Bari, afterwards proceeded to Molfetta, where several more bombs were dropped, killing one workman."

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Medal to the undermentioned non-commissioned officer and men of the Royal Flying Corps for acts of gallantry and devotion to duty :—

Corporal S. C. Griggs, R.F.C.

"For gallant conduct and exceptionally good work on March 10th–11th, 1915, in assisting to repair one of our aeroplanes close to the front line of trenches, under heavy shell fire."

2nd Class Air Mechanic H. D. Beet, R.F.C.

2nd Class Air Mechanic H. Dewhurst, R.F.C.

2nd Class Air Mechanic J. H. Dollittle, R.F.C.

2nd Class Air Mechanic J. E. Prance, R.F.C.

"For gallant conduct and valuable services on the night of March 10th–11th, 1915, in assisting to repair one of our aeroplanes which had been forced to descend near the firing line whilst being heavily shelled by the enemy. The machine was enabled to fly away by the following morning."

## THE BRITISH AIR SERVICES.

*UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.*

### Royal Naval Air Service.

THE following appeared in the Admiralty announcements of the 26th ult. :—

Sub-Lieuts. (R.N.V.R.) the Hon. G. de St. Croix Rollo, graded as Flight-Lieutenant, for temporary service, with seniority of May 29th, and reappointed; G. W. Cranfield and W. C. Michie, both graded as Flight Sub-Lieutenants, for temporary service, with seniority of April 6th, and reappointed; the Hon. A. S. Byng, J. R. Davison, E. S. Cripps, N. de Grey, and B. C. Windeler, all graded as Flight Sub-Lieutenants, for temporary service, with seniority of April 29th, and reappointed; R. Chambers, transferred to R.N.A.S., as Probationary Flight Sub-Lieutenant, with seniority of May 31st, and appointed to "President," additional, for R.N.A.S.; C. S. G. C. Kirby and R. V. Mostyn, promoted to Lieutenants R.N.V.R., to date May 24th; E. A. Lumley (temporary), promoted to temporary Lieutenant (R.N.V.R.), with seniority of May 24th.

Temporary Chief Petty Officer (R.N.V.R.) J. W. Culme-Seymour, granted temporary commission as Sub-Lieutenant (R.N.V.R.), with seniority of May 24th, and appointed to "President," additional, for duty with R.N.A.S.

Temporary commissions have been granted as follows: The Earl of Northesk, W. P. Wilson, and R. D. Bartlett, as Lieutenant (R.N.V.R.); T. B. Johnson and A. N. Mansergh, as Sub-Lieutenants (R.N.V.R.), all with seniority of May 20th, and appointed to "President," additional, for R.N.A.S.

The following entries have been made: J. E. M. Pritchard, as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of May 24th; H. F. Mills, as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of May 25th; J. E. Morgan and S. Bell (temporary), as Probationary Flight Sub-Lieutenants, with seniority of May 31st and June 9th respectively, and all appointed to "President," additional, for R.N.A.S.

The following appeared in the Admiralty announcements of the 29th ult. :—

Capt. J. W. F. Tarleton (Reserve of Officers) has been granted a temporary commission as Lieutenant (R.N.V.R.), and appointed to "President," additional, for service in armoured cars. May 25th.

C. V. Maybery, granted a temporary commission as Lieutenant (R.N.V.R.), and appointed to "President," additional, for inspectional duties in the R.N.A.S. May 27th.

W. E. Plaister, granted a temporary commission as Lieutenant (R.N.V.R.), and appointed to "President," additional, for duty with armoured cars. May 23rd.

E. Dalziel, granted temporary commission as Lieutenant (R.N.V.R.), and appointed to "President," additional, for duty with R.N.A.S. May 27th.

F. W. Merriam, entered as Flight Lieutenant, for temporary service, and appointed to "President," additional, for R.N.A.S. May 27th.

The following have been entered as Flight Sub-Lieutenants on probation, and appointed to "President," additional, for R.N.A.S.: R. W. Lane (temporary service), with seniority of May 25th; E. Cadbury and E. A. Pearson (temporary service), both with seniority of May 31st.

The following appeared in the Admiralty announcements of the 31st ult. :—

W. B. Threlfall and E. M. Pizey (temporary), both entered as Probationary Flight Sub-Lieutenants, with seniority of June 7th; M. G. Gill, granted a temporary commission as Sub-Lieutenant (R.N.V.R.), with seniority of May 29th, and all appointed to "President," additional, for R.N.A.S.

Temporary Sub-Lieutenants H. W. Furnival and F. D. Casey to the "President," additional, for duty with R.N.A.S. To date May 30th.

### More Aeroplanes from Overseas.

IN connection with the scheme of the Over-seas Club for each section of the British Empire to present an aeroplane to the Government, the Central Committee of the Club has received by cable the sum of £4,500, forwarded by the Governor of Hong Kong, on behalf of the Colony. The sum is intended to purchase two of the latest type of 100-h.p. gun mounted bip'anes, complete with

The following was included in the Admiralty announcements of the 1st inst. :—

Flight Commanders T. G. Hetherington, de C. W. P. Ireland, J. T. Babington, D.S.O., F. E. T. Hewlett, A. W. Bigsworth, A. C. Barnby, H. Fawcett, and R. P. Ross, all promoted to the rank of Squadron-Commander, with seniority of May 27th.

Flight Sub-Lieut. F. J. Rutland granted the acting rank of Flight-Lieutenant, with seniority of May 30th.

Squadron-Commander C. R. J. Randall, seniority as Squadron-Commander postdated to July 1st, 1914.

C. F. Brandon-Penley, entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of June 7th, and appointed to "President," additional, for R.N.A.S.

L. C. Cody entered as Warrant Officer (2nd Grade), for temporary service, with seniority of May 31st, and appointed to "President," additional, for R.N.A.S.

### Royal Flying Corps (Military Wing).

THE following appeared in a supplement to the *London Gazette* issued on the 26th ult. :—

*Flying Officer.*—Second Lieut. Lewis W. F. Turner, Special Reserve. May 1st, 1915.

*Assistant Equipment Officer.*—Second Lieut. Hamilton S. Coles, Special Reserve. May 5th, 1915.

*Memoranda.*—Captains to be temporary Majors: Philip W. L. Broke-Smith, Royal Engineers, whilst employed as a Deputy Assistant Director of Aviation; March 26th, 1915. Hugh L. Reilly, 82nd Punjabis, Indian Army, whilst employed as a Flight-Commander; April 9th, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 27th ult. :—

*Supplementary to Regular Corps.*—Second Lieutenants to be Lieutenants; April 24th, 1915: Francis P. Adams, Richard R. Orr-Paterson, Archiebald B. Ford, Cecil H. Saunders, John R. Howett, Edwin L. M. L. Gower, Thomas F. Rutledge, Archibald G. Weir, Hereward de Havilland, Leonard Parker, Clifford A. Hooper, Cyril M. Crowe, and Julian P. Inglefield.

Second Lieut. (on probation) Gerald Merton is confirmed in his rank.

Henry I. F. Yates to be Second Lieutenant (on probation). May 12th, 1915.

The following appeared in the *London Gazette* of the 28th ult. :—

The appointment of the following Flying Officers to be Flight-Commanders and to be temporary Captains, notified in the *Gazette* of May 8th, is post-dated to April 19th: Lieut. C. E. C. Rabagliati (Yorks L.I.); Lieut. R. L. Charteris, Special Reserve; Second Lieut. (now Lieut.) M. B. Blake, Special Reserve.

*Assistant Equipment Officers.*—Second Lieut. A. G. Clark, Special Reserve; Second Lieut. A. M. Cott, Special Reserve. April 9th.

The following appeared in the *London Gazette* of the 1st inst. :—

*Flight Commanders.*—Lieut. Leslie Da C. Penn-Gaskell, Norfolk Regiment, from a Flying Officer, and to be temporary Captain; April 27th, 1915. Lieut. David E. Stodart, Special Reserve, from a Flying Officer, and to be temporary Captain; May 6th, 1915. Lieut. (temp. Capt.) Lionel S. Metford, Special Reserve, from an Equipment Officer, and to retain his temporary rank; May 12th, 1915. Lieut. Jack A. Cunningham, Royal Artillery, from a Flying Officer, and to be temporary Captain; May 16th, 1915.

*Flying Officers.*—Second Lieut. Ernest L. Gossage, Royal Artillery, and to be seconded; May 12th, 1915. May 14th, 1915: Second Lieut. H. B. R. Grey-Edwards, Royal Artillery, and to be seconded. Second Lieut. J. R. McCrindle, 7th (Deeside Highland) Battalion Gordon Highlanders, T.F. Second Lieut. Gerald Merton, Special Reserve.

*Equipment Officer.*—Second Lieut. Norman Goldsmith, Royal Artillery, from an Assistant Equipment Officer, and to be temporary Captain; May 17th, 1915.

In the supplement to the *London Gazette* issued on the 2nd inst., there was the following :—

*Supplementary to Regular Corps.*—Temporary Lieutenant Lawrence T. G. Mansell, from the General List, to be Lieutenant and to retain his appointment as temporary Assistant Inspector, Aeronautical Inspection Department. June 3rd, 1915.

quick-firing gun, &c., at a cost of £2,250 each. The white population of Hong Kong, including the garrison, is only 11,000, so it will be seen what a splendid example of practical patriotism is furnished by the Colony's generosity.

With these, the scheme so far has resulted in the presentation of five machines, and it is hoped that several others will be arranged for shortly.

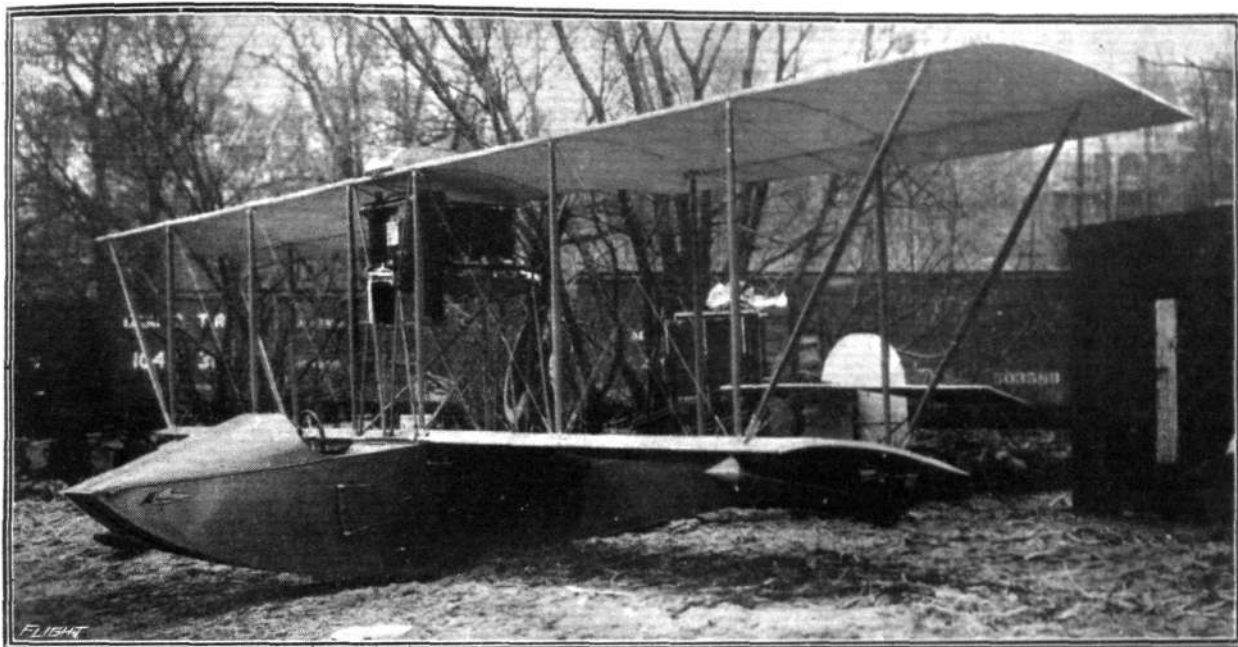


# THE THOMAS FLYING BOAT.

(SPORTING TYPE.)

SOME little time ago we published a description and scale drawings of the Thomas military tractor biplane, which had done so well in its preliminary trials. A few particulars and the accompanying illustrations of a flying boat built by this same enterprising firm are now to hand. It should be stated at the outset that this flying boat is not

by two pairs of vertical interplane struts on each side. The weight of the top plane extension is taken by two struts sloping outwards to a point near the tip, and attached at their lower ends to the bottom plane at the point where the outer pair of struts are secured. The engine—a 90 h.p. Austro-Daimler—is mounted on a

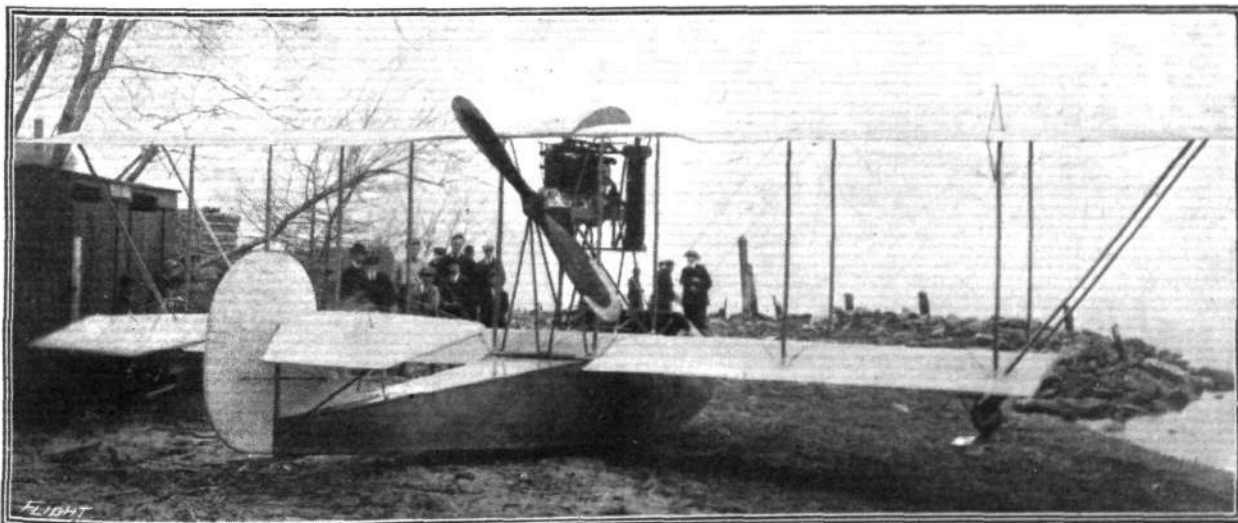


Three-quarter front view of the Thomas flying boat.

by any means the first to be turned out by the Thomas factory, which is now situated at Ithaca, N.Y., on Lake Cayuga. As a matter of fact, Messrs. Thomas Brothers have had several years of experience in the construction of this type of craft.

In its general arrangement the Thomas flying boat

structure of steel tubes slightly more than half-way up between the planes. It is started in the usual way by means of a starting handle projecting out in front and within easy reach of pilot or passenger. As is the usual practice in flying boat design, the propeller is placed at the rear of the planes. The trailing edge of the top



Three-quarter rear view of the Thomas flying boat.

does not represent any radical departure from usual practice, but when one comes to look into the construction several innovations are to be found. The main planes, of which the upper one possesses a considerable overhang, are rectangular in plan form, and are separated

plane has been cut away in the centre up to the rear spar to give clearance for the propeller. A small petrol service tank having the shape of a somewhat deeply cambered aerofoil is mounted on top of the upper plane, and petrol is fed to the carburettor from this tank by

gravity. The main tank is placed down inside the boat, from which the fuel is fed to the service tank by means of a pressure pump.

One of the most interesting features of the machine is the construction of the boat, which, as regards shape, does not differ greatly from what may be termed standard practice. The framework of the boat is made of spruce, and over this is a planking of two thicknesses of cedar. Instead of the third wooden skin which is generally employed to complete the planking of the hull, the outer covering of the Thomas flying boat consists of light gauge sheet steel, which is claimed by the makers to ensure an absolutely leak-proof boat. It is to be presumed that this outer covering is well protected against the action of sea-water by some non-corrosive composition. Pilot and passenger are installed side by side in a very comfortable cockpit, the pilot occupying the seat on the left hand side. Control is by means of a rotatable hand-wheel mounted on a vertical column, and operating the elevator and rudder. The double-acting *ailerons* attached to the trailing edge of the upper plane are operated by means of a foot bar, but, if desired by the purchaser, the more generally adopted system of control, *i.e.*, hand-wheel for *ailerons* and elevator and foot-bar for the rudder, can be substituted. The instruments include revolution counter, which can be engaged and disengaged at will, air speed indicator, clock, barograph and compass. A 10 lbs. folding anchor is also provided. Cylindrical metal floats fitted with spring boards are attached to the outer ends of the lower plane.

Mounted on a structure of steel tubes bolted to the rear portion of the boat is a fixed horizontal stabilising plane to which is hinged the divided elevator. Below the stabilising plane is a small vertical fin, attached to the deck of the boat and to the rudder post. Round the latter is pivoted the partly balanced rudder.

The following general dimensions should give a good idea of the proportions of the machine: Length o.a., 25 ft. 5 ins.; span of top plane, 36 ft. 3 ins.; span of lower plane, 28 ft. 3 ins.; chord, 5 ft.; gap, 5 ft. 9 ins.; area, 325 sq. ft.; length of boat, 23 ft.; beam-top, 3 ft. 4 ins.; bottom, 2 ft. 10 ins.; maximum depth, 3 ft.;



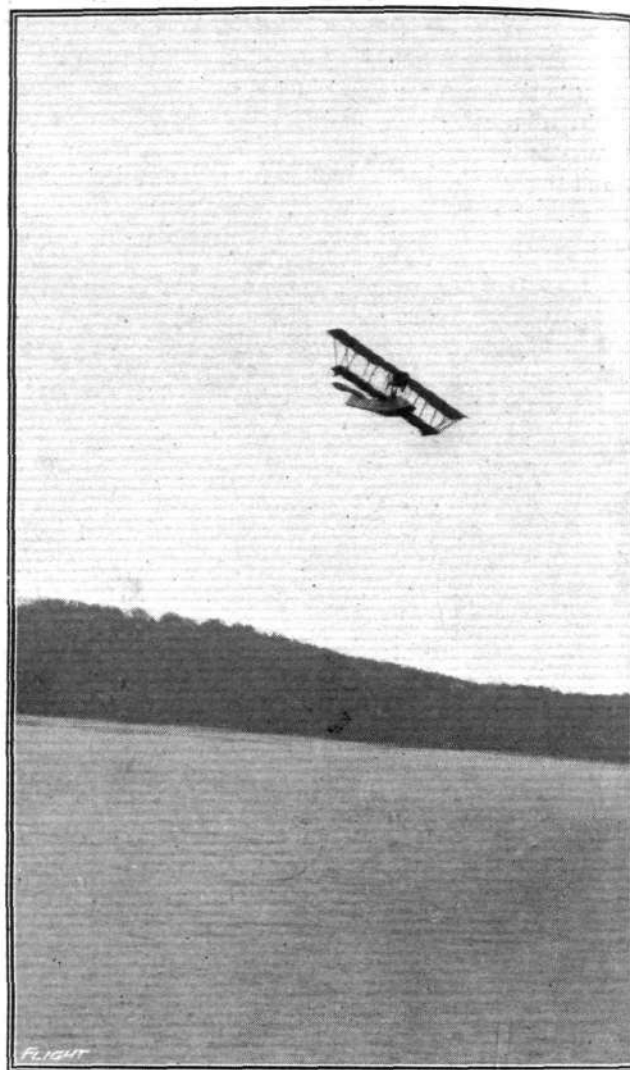
## CORRESPONDENCE.

### Edward Busk Memorial.

[1903] There is a strong feeling among members of the staff of the Royal Aircraft Factory, the Aeronautical staff of the National Physical Laboratory, members of the Aeronautical Society of Great Britain, and of King's College, Cambridge, and relatives and friends of Mr. Edward Teshmaker Busk, late of the London Electrical Engineers, that a memorial should be founded in his honour and for the promotion of the study of aeronautics, to the advancement of which science he so largely contributed.

Mr. Busk was only 28 years of age when, on the 5th November last, he died at Aldershot while flying his own stable aeroplane, owing to its destruction by fire, thus terminating a career already marked by fine achievement and full of promise for the future. At Cambridge he took First Class Honours in the Mechanical Sciences Tripos, and was awarded the John Wimbourne Prize and a Scholarship at King's College. After passing some years as an engineer with Messrs. Halls and Co., at Dartford, he joined the staff of the Royal Aircraft Factory, where he devoted his time especially to the mathematics and dynamics of stable flight of the full-size aeroplane, to researches into the nature and cause of wind gusts, and to the uses of aircraft in warfare for offensive and defensive purposes. Besides this work, he was entrusted with the general control of the chemical, metallurgical, and physical research and test work at the factory.

The Council of the Aeronautical Society unanimously decided to



The Thomas flying boat over Lake Cayuga.—The pilot is holding his hands above his head to show the stability of the machine.

climbing speed, about 500 ft. per minute; horizontal speed, 68 m.p.h.



award to Mr. Busk their gold medal, in recognition of his distinguished services to aeronautical science.

The memorial will consist of (i) a studentship to enable a student to carry on some research in aeronautics or a kindred subject, and (ii) a lecture on some such subject to be given annually by the holder of the studentship or by some other lecturer, and to be published in the "Aeronautical Journal."

Subscriptions to the amount of about £2,500 have been received or promised, and further contributions will be gratefully acknowledged by Sir Edward H. Busk, 11, Sussex Place, Regent's Park, N.W., or the Secretary of the Aeronautical Society of Great Britain, 11, Adam Street, Adelphi, W.C. Donors will kindly state to which of the above purposes they wish their contributions to be applied.

R. M. RUCK, Maj.-Gen., Chairman of Council, Aeronautical Society of Great Britain.

MERVYN O'GORMAN, Superintendent, Royal Aircraft Factory.

R. T. GLAZEBROOK, Director, National Physical Laboratory.

M. R. JAMES, Provost of King's College, Cambridge, and Vice-Chancellor of the University of Cambridge.

W. H. MACAULAY, Fellow and late Tutor of King's College, Cambridge, and formerly University Lecturer in Applied Mechanics.

B. HOPKINSON, Fellow of King's College, Cambridge, and Professor of Mechanism and Applied Mechanics.

11, Adam Street, Adelphi, W.C., May, 1915.



# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Aviators' Certificates.

THE following Aviators' Certificates have been granted :—

- 1267 Egide Roobaert (Belgian Subject) (Caudron Biplane, Ruffy-Baumann School, Hendon). May 11th, 1915.
- 1268 2nd Class Air Mechanic William Edwin Bennett, R.F.C. (Maurice Farman Biplane, British Flying School, Le Crotoy, France). May 22nd, 1915.
- 1269 Stanley Thomas Welch (Maurice Farman Biplane, Military School, Brooklands). May 26th, 1915.
- 1270 2nd Lieut. Richard Hodgson Read (Duke of Cornwall's Light Infantry) (Maurice Farman Biplane, Military School, Brooklands). May 26th, 1915.
- 1271 2nd Lieut. John Hamilton Mansfield (3rd King's Shropshire Regt.) (Maurice Farman Biplane, Military School, Shoreham). April 24th, 1915.
- 1272 Lieut. Alfred Erasmus Geoffrey MacCallum (Maurice Farman Biplane, Military School, Shoreham). May 15th, 1915.
- 1273 2nd Lieut. William Anthony Harvey (4th Norfolk Regt.) (Maurice Farman Biplane, Military School, Shoreham). May 21st, 1915.
- 1274 Lieut. A. H. Morton, R.H. and R.F.A. (Maurice Farman Biplane, British Flying School, Le Crotoy, France). May 27th, 1915.
- 1275 Basil Charles McEwen (Maurice Farman Biplane, Military School, Brooklands). May 28th, 1915.
- 1276 Oscar Greig (Maurice Farman Biplane, Military School, Brooklands). May 29th, 1915.
- 1277 Flight Sub-Lieut. William Doustoun Wain, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). May 29th, 1915.
- 1278 Lieut. E. W. Powell, R.A.M.C. (Maurice Farman Biplane, British Flying School, Le Crotoy, France). May 29th, 1915.
- 1279 Flight Sub-Lieut. Alexander Robb Cox, R.N.A.S. (Maurice Farman Biplane, Royal Naval Air Station, Chingford). May 29th, 1915.
- 1280 Georges Maurice Chapelle (French Subject) (Caudron Biplane, Beatty School, Hendon). May 29th, 1915.

- 1281 Flight Sub-Lieut. Edward Alexander de Lossy de Ville, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). May 29th, 1915.
- 1282 John Arthur Turner (L. and P. Biplane, London and Provincial School, Hendon). May 31st, 1915.

## THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

### Subscriptions.

	£	s.	d.		£	s.	d.
Total subscriptions received to May 26th, 1915	9,005	5	0	D. A. Merion-Smith (Second contribution)	0	4	0
C. F. Heathcote	1	1	0	Collected by Miss Jean Ogilvie (Second contribution)	0	1	0
Hewlett and Blondeau, Ltd., and Employes (Second contribution)	13	0	0	Mrs. Wyness and Friends	3	3	0
Anonymous	10	0	0	Percy G. Penne	0	10	0
E. Victor Pringle	5	0	0	Total, June 2nd, 1915	9,143	4	0
Gwynnes, Ltd.	105	0	0				

166, Piccadilly, W. B. STEVENSON, Assistant Secretary.

## THE "X" LONDON RAID.

AT 1.20 a.m. on the 1st inst. the following was issued by the official Press Bureau :—

"Zeppelins are reported to have been seen near Ramsgate and Brentwood and in certain outlying districts of London.

"Many fires are reported, but these cannot be absolutely connected with visit of airships.

"Further particulars will be issued as soon as they can be collected and collated."

At 5 p.m. the following statement was issued by the Press Bureau :—

"In amplification of the information which appeared in this morning's papers, the following particulars of last night's Zeppelin raid in the Metropolitan area are now available for publication.

"Late last night about ninety bombs, mostly of an incendiary character, were dropped from hostile aircraft in various localities not far distant from each other. A number of fires (of which only three were large enough to require the services of fire engines) broke out. All fires were promptly and effectively dealt with, only one of these fires necessitated a district call. The fires were all caused by the incendiary bombs referred to. No public building was injured, but a number of private premises were damaged by fire or water.

"The number of casualties is small. So far as at

present ascertained, one infant, one boy, one man, and one woman were killed, and another woman is so seriously injured that her life is despaired of. A few other private citizens were seriously injured. The precise numbers are not yet ascertained.

"Adequate police arrangements, including the calling out of special constables, enabled the situation to be kept thoroughly in hand throughout."

In the "wireless" news from Berlin on Tuesday there was the following :—

"By way of reprisals for the bombardment of the open town of Ludwigshafen, we last night dropped bombs on the workshops (or wharves) and docks in London."

The absence of any further details is explained by the following statement issued by the Press Bureau :—

"The Press are specially reminded that no statement whatever must be published dealing with the places in the neighbourhood of London reached by aircraft, or the course supposed to be taken by them, or any statement or diagram which might indicate the ground or route covered by them.

"The Admiralty *communiqué* gives all the news which can properly be published. These instructions are given in order to secure the public safety, and the present intimation may itself be published by the Press as explaining the absence of more detailed reports."

## FROM THE BRITISH FLYING GROUNDS.

London Aerodrome, Collindale Avenue, Hendon.

**Grahame-White School.**—Sunday and Monday, last week, too windy for school.

Tuesday, Probationary Flight Sub-Lieuts. Blackburn, Leigh, Simpson and Wyllie straights with instructor.



Flight Sub-Lieut. J. P. Coleman, R.N.A.S., who has recently secured his *brevet* at the Grahame-White School, Hendon.

Probationary Flight Sub-Lieuts. De Roeper and Simpson straights alone. Probationary Flight Sub-Lieuts. De Roeper and Smylie circuits.

Friday, Probationary Flight Sub-Lieuts. Blackburn, Pennington and Wyllie straights with instructor. Probationary Flight Sub-Lieut. Wain circuits.

Saturday, Probationary Flight Sub-Lieuts. Blackburn, Leigh, Pennington and Wyllie straights with instructor. Probationary Flight Sub-Lieut. Simpson half circuits.

Sunday, Probationary Flight Sub-Lieuts. Blackburn, Leigh, Pennington and Wyllie straights with instructor. Probationary Flight Sub-Lieut. Smylie circuits with instructor.

Tickets taken during week: Probationary Flight Sub-Lieuts. De Ville and Wain. Probationary Flight Sub-Lieut. De Roeper, Test A.

**Beatty School.**—The following pupils were out during the week accompanied by the instructors:—Messrs. Chalmers (35 mins.), Chapelle (15), Crossman (12), Fitzherbert (18), Johnston (10), Morgan (10), Ross (32), Rutherford (10), Tomlinson (40), Vickers (10), Whincup (10), Broughton (20), King (18), Jones (25), Eaton (38), Fox (18), Arbon (10), Fawcett (10), Holland (10), Zimmermann (10), Bush (10), Gurney (10), Watson (23). The instructors were Messrs. G. W. Beatty, W. Roche-Kelly, C. B. Prodger, and Bransby Williams, the machines in use being Beatty-Wright dual-control and single seater propeller biplanes and Caudron tractors.

An excellent ticket was taken on Saturday by Mr. Georges Chapelle on a 45 h.p. Caudron.

Exhibition flights were given by Messrs. Roche-Kelly and Prodger on Saturday and Sunday, and three passenger flights were taken during the week.

**Hall School.**—As usual at the Hall School excellent work was put through. The star turn of the week was Mr. Cecil M. Hill, a well-known West of England motor engineer, who qualified and took his Royal Aero Club Certificate in wonderful style, attaining the record height of 2,200 ft., with a *vol plané* from 1,500 ft. The other pupils are also progressing very well. With Instructor Herbert James (who has joined the school as second instructor) Messrs. Snook (36 mins.), Hamer (18), Mason (21), Hatchman (29), Snowdon (22½), Booker (15), Millbourne (15), Bayley (36), Lieut. Raymond-Barker (15), Lieut. Jowett (15), Mitchell (20).

With Mr. Stevens on 35 h.p. tractor No. 1: Messrs. Furlong (55 mins.), Minot (47), Hill (35), all doing good straight flights and half circuits. With Mr. Stevens on



Photo. by Herbert and Son, Bowness.

Two of the waterplanes of the Northern Aircraft Co. at their school on Lake Windermere. On the left is the N.A.C.-Avro, and on the right the N.A.C. "Pusher" monoplane, Mr. Rowland Ding being seen standing in the nacelle.



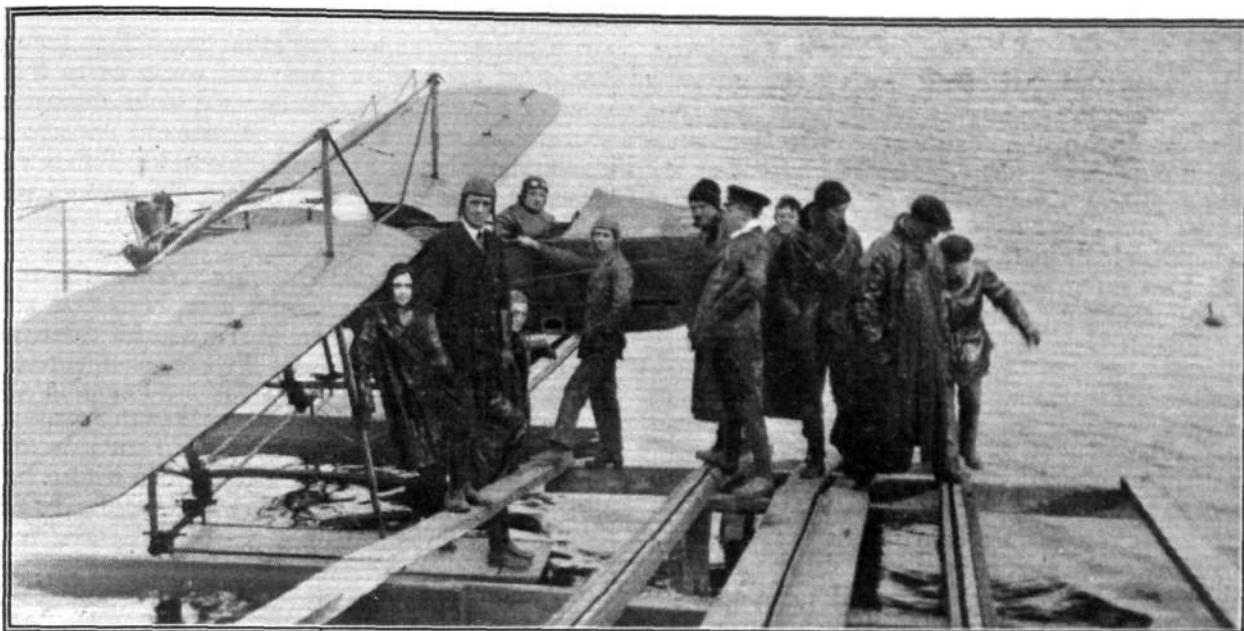


Photo by Herbert and Son, Bowness.

**SOME OF THE PUPILS AT THE NORTHERN AIRCRAFT FLYING SCHOOL ON LAKE WINDERMERE.**—In the pilot's seat Mr. W. Rowland Ding, and from left to right, Prob. Flight Sub-Lieuts. Hume, Graham, Laver, Mr. Yates, Prob. Flight Sub-Lieuts. Perrett, Hodges, Messrs. Part and Ralton, Prob. Flight Sub-Lieut. Clifford, and Mr. Robinson.

*brevet* tractor No. 2: Cecil M. Hill 5 circuits and 3 figures of "8," afterwards qualifying for *brevet* taken on Sunday in excellent style.

Two new two-seater machines are now nearing completion at the works, besides a single-seater, which will be commissioned in a fortnight's time.

Machines in use during week: Nos. 5, 2 and 1 Hall tractor biplanes.

**London and Provincial Aviation Co.**—Monday and Tuesday last week, windy.

Wednesday, Messrs. Franchomme and Bell straights. Messrs. Irwing and Gunner flights with Mr. Moore. Thursday, windy.

Friday, Messrs. Nethersole, Minto, Scott and Wattinne rolling. Messrs. Bell and Turner straights.

Saturday, Messrs. Minto, Scott, Nethersole and Wattinne rolling. Messrs. Bell, Franchomme, Irwing and Gunner straights. Mr. Turner half-circuits and circuits. Mr. Moore gave exhibitions and carried passengers on Thursday and Saturday. Machines: 3 L. and P. biplanes. Instructors at work: Messrs. M. G. Smiles, J. H. Moore, W. T. Warren and W. D. Smiles.

**Ruffy-Baumann School.**—A very good week's work has been accomplished, and has included the taking of half a *brevet* by Broughton, this pupil flying his "eights" in excellent style.

Tuesday of last week saw Chappelle, Broughton and Blandy out on 50 and 60 Caudron type biplanes.

Wednesday was an extraordinarily fine day for school

work, and the following pupils took advantage of their opportunities: Chappelle, Hudson, Wallis, Broughton, Blandy, Hubbard, Robertson and Brand.

Friday morning, Broughton, May, Brand, Chappelle and Blandy made use of the good weather, and much work was put in by instructors and pupils.

Saturday last, Broughton accomplished half of his tests for ticket, doing well whilst in the air. Blandy, May, Cole and England-Derwen were doing good flights on the 50 h.p. Caudron type biplane.

On Tuesday evening Lieut. de Broughton passed for his certificate, making a good *vol plane* and landing.

The Ruffy-Baumann School of Flying announces three vacancies for pupils. Those desirous of taking a course of instruction should apply immediately.

Instructors: Edouard Baumann, Felix Ruffy, Gino Virgilio and Clarence Winchester.

#### **Northern Aircraft Co., Ltd.**

**The Seaplane School, Windermere.**—Although the weather last week was sunny, persistent high winds, which did not drop either at sunrise or sunset, have curtailed school work. Instructors: W. R. Ding and J. L. Parker. With Instructor: Probationary Flight Sub-Lieuts. Hume, Perrett, Graham, Clifford, Hodges, Messrs. Yates and Laidler. Flight Lieut. L. L. Atherton out on Blériot. Machines: N.A.C. propeller monoplane, 80 Gnome, and Blériot monoplane, 35 Humber.

The usual illustrated lectures were given on "Floats" and "Head Resistance."

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#### **A German Derelict Airship.**

The *Daily Telegraph* correspondent at Copenhagen on the 27th ult. telegraphed:—

"A Zeppelin airship without a crew has been observed at Odense, Denmark, drifting in a westerly direction. She is the one which broke loose at Königsberg."

On Sunday last the *Morning Post* correspondent in the Danish capital wrote:—"The German airship which broke loose on May 21st from Königsberg is regarded as lost. Zeppelins which have been cruising over the Baltic to Danish territory in search have returned without achieving any result."

#### **Fate of the Southend Raider.**

A *Morning Post* correspondent at Berne, writing on Monday, said:—

"From a German source I learn that one of the Zeppelins that took part in the last raid on Southend was so seriously damaged by British Artillery fire that it came down into the sea near Heligoland. It is said that the crew perished."

The *Suisse*, of Geneva, says that the report is confirmed at Friedrichshafen, while a *Daily Mail* correspondent at Vevey says that orders are said to have been given to the Zeppelin Co. for a new airship to replace the one lost.

# ZEPPELIN BOMBS DISTURB "THE DREAMER."

BOOM! It was five minutes to eleven on Monday evening last, and I had just lain down in bed with that comfortable feeling fostered by the idea, which too many of us are inclined to assume, that the war is a long way off. My first thought was that somebody had closed their front door rather noisily, and I was only half interested. But I turned on my back to liberate both ears.

Boom! boom! boom! came in quick succession. This time I sat up in bed with a start. Instantly I realised what it meant. London was being bombarded, and war had been brought home to my very door. In an indistinct sort of way I had an impression of surprise and annoyance. I had a Britisher's deep-rooted objection to being fetched out of bed once I had retired for the night, and in addition, perhaps, I share with others the foolish half-thought that not being in service uniform this war is none of my business. Therefore the fact that it was, was now brought home to me in the best possible manner, though with somewhat of a shock. To flatter oneself that the war is a long way off is comfortable, but is a fool's paradise. The idea that our wars are all far away troubles is a germ which was planted hundreds of years ago. It has since been carefully nurtured and handed down through the generations, until the Britisher of the present day can hardly bring himself to believe that he would ever lie in his bed in London within sound of the guns of the enemy. All our wars hitherto have been a long way off, but that was before aviation had come to alter things. And we do not take readily to new conditions. What we know of war, we phlegmatic Britishers, is the sending out of troops. We have seen the troops marching through the streets. It has been an incident, and rather interesting to watch them entrain at Victoria or Waterloo, and in the mornings we have sat comfortably in our corner of the carriage and whiled away the time by reading the latest news from the front, but the war has always been a long way off, something not really our business, though something in which we were interested. We knew, in a way—a Censor sort of way—that somewhere "out there" battles were raging. But we quite expected them to fight it out between themselves, and not trouble us with their affairs. We expected our troops to be victorious as usual, and we were quite prepared to turn out in our thousands to give them a rousing welcome home, but that seemed to be really all that could be expected of us.

Boom! much nearer. I was out of bed and into some clothing in double quick time, and had my face glued to the window. I could see the flashes as the bombs reached earth, and they seemed to be all around me. Bang! crash! Just across a piece of ground where the boys generally play cricket. Somebody's hen-roost took unto itself wings, and the thought flashed through my mind I was glad I killed my hens off at Christmas. I had no feeling of fear, or that I wanted to get away from it. It was

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## Air Raid Precautions at London Hospital.

IN the report of the House Committee of the London Hospital, presented at the quarterly meeting of the Governors on Wednesday last, there was the following reference to the precautions taken against aircraft raids:—

"With regard to the raid by Zeppelins or aircraft, the German and British Governments had agreed upon a protective sign for churches, museums, hospitals, &c. This sign, which consists of a square divided diagonally with black and white, has been painted on the roof of the Hospital. Special instructions had been issued to

just excitement, and if the Huns think that their Zeppelin raids will create a panic and cause us to think of peace at any price, they are doomed to be disappointed. The order to keep all windows closed did not appeal to me in the least, and I opened mine to the fullest extent. I could see nothing of the raiders, but my ear, trained to the hum of the aero engine, could distinctly detect the different sound of the Maybach power plant, though it seemed at a great altitude. Much lower, the familiar whirr told me that one of our aeroplanes was passing overhead, although I could not see it, and I wondered what sort of a landing the pilot would make when he returned, and whether we had given sufficient attention to the proper illuminating of our aerodromes in this respect.

Back and front of my house the bombs were now dropping, though much further away than before. After eleven-fifteen I heard no more, and returned to bed, having counted, roughly, about fifty. At one-twenty I heard the returning aeroplane, and then dropped off to sleep to dream that I was out in the street dodging bombs which were being hurled at me from all directions.

I felt that this had been only a "feeler," and made up my mind that the following night would see a repetition in force. I went to bed prepared accordingly to jump out at the very first sound, but, strange to say, I went to sleep and forgot all about it, waking in broad daylight with a feeling of disappointment, and a wonder as to whether I had missed the fun. There had been nothing doing, however, though there will be, without a question. But unless a bomb happens to crash through the roof of my own "Desirable Semi-detached Residence, with all the usual offices," as the estate agent would put it, I don't think I shall trouble very much about it, and if it should choose my particular roof to land upon, I shall probably not be in a position to trouble, so what does it matter? What does matter, however, is that the young blood of England should realise that this war is not a long way off, that it is here, and that they are wanted to help to keep these German fiends from killing and injuring women and children. And, further, I think if the aged Count will only continue to send his gasbags over, he will help recruiting more than anything we could do. There is nothing like an object-lesson to instil a point. Londoners have had *one*, and without doubt we shall have others. It is difficult to do much with them when they are here, sailing over at ten thousand feet, in the night. The thing to do is to go out *there*, and dig them out by the roots. Numbers can do it, and numbers only. When we have had a few more of these raids, when the object-lesson has been pushed well home, the entire remaining manhood of England will, perhaps, rise in their might, with grit teeth, as is their wont, and smite them hip and thigh. The danger is in the waiting, and there only. Then why wait?

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the sisters and nurses in the event of bombs being dropped in the vicinity of the Hospital. As it is possible that bombs may emit poisonous gases, stress has been laid on the necessity of shutting all basement and ground floor windows, since the gas used would undoubtedly be heavy and would not rise far from the ground. Certain experiments have also been made with regard to the extinguishing of fires caused by incendiary bombs. These bombs undoubtedly consist largely of phosphorus dissolved in carbon bi-sulphide, for the extinguishing of which water is more satisfactory than sand."



## EDDIES.

HUSTLING Hendon is the impression gained by a fleeting visit to the various sheds and workshops at the aerodrome last week end. The weather had for days been most unkind to the number of uniformed and non-uniformed potential navigators of the "central blue," and in consequence the greater part of the activities had been transferred to the other side of the sliding doors. Possibly it was the absence of Beatty blinkerless biplanes, which by the way are not blinkerless any more, experience having proved that in the hands of a pupil these machines are easier to handle with aforesaid blinkers in place. At any rate it was to the Beatty sheds that I first bent my steps, on my arrival at the drome. Mechanics were hard at it, assembling the new Beatty 8-cylinder "Vee" engine, so that it looks as if it should not be very long before preliminary tests are in operation. Meantime I was let into the secret with regard to the new 4-cylinder vertical engine, which has been partly redesigned, as a result of data obtained with the first experimental one. The most radical alteration is perhaps the substitution of mechanically operated inlet valves for the automatic ones. Another improvement is found in the crank case, which is now made in two parts with a view to rendering the crank shaft and big-end bearings more accessible. This operation is further facilitated by having the engine mounted on two tubes, so that for inspection or minor repairs the whole motor can be swung round the tubes and turned upside down without any bother. In this position most parts can be removed without taking any of the cylinders off.

x x x

Whilst chatting with Mr. Beatty, my attention was attracted to what looked like a boat motor resting in a corner of one of the sheds. This proved to be an American Roberts engine, evidently designed on boat motor lines, and it is to be put through its paces as soon as suitable arrangements can be made. The Roberts is a 6-cylinder two-stroke vertical of 100 h.p., but if the claim of the makers is borne out in actual practice it should be capable, when running all out, of developing a good deal more than that. In the meantime it is perhaps better not to hazard any guesses at what it will or will not do, for two-stroke engines have a peculiar way of springing little surprises in the way of performances. If it comes out of the trials with full honours, there is no telling what might happen, but I have an idea that Beatty has rather taken a fancy to the Wright *fuselage* biplane. However, —

x x x

At the Hall sheds everybody was busy as usual, and in addition to repair work in connection with the school machines, finishing touches are being put to the new *fuselage* biplane, or, more correctly speaking, the new *fuselage* fitted into the wings of the Caudron type biplane. This 'bus, although somewhat roughly built, being more or less of an experiment and intended for school work, should prove interesting, as the combination of flexible wings and long *fuselage* would seem to possess several good points. The engine is a 50 h.p. Gnome partly enclosed in a cowl of the Morane type. Unless repair work on the school machines delays the finishing of this new model, it will probably be out during the coming week-end.

x x x

When paying a short visit to the Ruffy-Baumann school

the other day, I was told that the James brothers, who have for some time past been instructors at this school, have transferred their activities to the Hall Aviation Co. As the sheds are next door to one another, the move was soon accomplished, and the R.-B. camp is for the moment one machine and two instructors short. The former is in a fair way to be replaced, as the wings of a new 50 h.p. biplane have arrived from the works, and Mr. Baumann is still ably assisted by M. Virgilio, who, being in the reserve, has not yet been recalled to Italy. Virgilio, who is, by the way, attached to the Italian submarine service, hopes that when he is called home he will be allowed to transfer into the air service. However, at present there does not seem to be any immediate danger of him leaving the good work he is doing up at Hendon.

x x x

In spite of the pressure of work on Government orders, time has been found to design and construct a new chassis for the Grahame-White tractor biplane. Although almost as simple as the old one, the new under-carriage provides much better springing, the axle being slung by rubber bands from two pairs of U tubes and anchored by means of radius rods. Manton has been flying the machine quite a lot recently, and is getting used to the high speed. He still seems to have some difficulty in bringing the landing speed down to its minimum, a difficulty most pilots have encountered when first trying to land on a fast scout. When flattening out a few feet above the ground, these machines seem to glide along for quite a long distance before slowing sufficiently to pancake the last foot or so.

x x x

Since the military authorities took possession at Brooklands news from that quarter has become comparatively scarce, and perhaps not unnaturally, when it is remembered that all the sheds have been taken over for the use of the R.F.C. When I say all, I am not strictly accurate, as the Martinsyde and Blériot firms occupy a number of hangars, the old ones being supplemented by a number erected recently. The hangars formerly occupied by the Bristol, Sopwith and Vickers firms are used by the R.F.C.

x x x

Talking about Vickers reminds me that some little time ago I was told that the Vickers gun-carrying biplane is a particularly nice machine to handle, and that when carrying a gun or being otherwise balanced with the equivalent weight in front they can be flown "hands off" for long stretches at a time.

x x x

At the Blériot works a number of monoplanes are being constructed, for although these machines have not been found speedy enough for actual service at the front, they are perfectly suitable for school purposes and for other uses at home. In addition to these a number of Avro biplanes are being built by Blériots, who have started to erect a very large shed in order to cope with the ever-increasing demand for machines. It is said that the French Blériot firm have lately turned out one or two new machines that have given excellent results under test, but regarding these nothing may be disclosed at present.

The only other firm now actually constructing machines at Brooklands is the Martinsyde. They are so busy turning out their scouts and other machines that it has been found impossible to keep pace with the requirements in spite of the extensions already made, and therefore an auxiliary factory has been started at Woking. It is indeed gratifying to see this firm has come into its own at last. Long before their great capability was officially recognised their excellent workmanship had placed them in the front rank of constructors. They are now but receiving their just reward for persevering in the face of past discouragement by an unappreciative Government, and the piling up of orders has become almost embarrassing since their great ability was appreciated in a practical form. While still retaining interchangeability with those of the first Martinsyde scout, many detail improvements and refinements have been incorporated in later editions, with the result that the speed has been considerably increased, and the latest type does a trifle of—well it is dangerous to mention actual figures these days, but at any rate they are sufficiently fast for the Government to hanker after them in considerable numbers. The four-wheeled chassis seems to be a marvel of strength, enabling landings to be made on very rough ground, and I am even told that on several occasions the machines have turned completely over without suffering any injury whatever. Martinsyde construction, you know.

Sealing by aeroplane at first blush sounds rather tall, but upon consideration there should be much in it. According to the St. John's correspondent of the *Standard*, it is seriously under contemplation, in view of the failure of the Newfoundland sealers to locate the herds of seals, to employ an aeroplane to scout along the eastern seaboard in the early days of next March. In the usual way much valuable time is lost by the sealers having to cruise about among the ice-floes searching for the herds, which they often miss entirely, while at other times only a partial kill is secured, and it is thought that it may be possible to effect a considerable saving in time and money by sending out air-scouts. We hope

there is no nigger in the project, but it is not quite apparent which is to the most suitable type of machine to use. It raises thoughts as to what would happen to the floats of a seaplane hitting the sharp edge of an ice-floe at 60 odd miles per hour, and as the hunt does not, apparently, begin until the ice has started to break, the employment of a land machine seems to have its drawbacks. But the enormous advantages to be gained are such that I doubt not but that a trial will be made.

x x x

It is gratifying to see that the real hard, plugging work done by those of our pilots whose names were familiar to all our readers in the days before the war is meeting with recognition in high quarters. Following on the appointments of Lewis Turner and C. Howard Pixton to commissions in the R.F.C., it is pleasing to note from the official lists that that other old-timer—F. Warren Merriam—has been given a commission as Flight-Lieutenant, R.N.A.S. The announcement will be received with satisfaction by all his friends, and they are legion. Congratulations!

x x x

It would be difficult to find a more typical example of criticism based on a minimum of technical knowledge of the subject criticised than the letter sent to the *Globe* of May 31st by a correspondent signing himself J. W. Ward. After questioning why Zeppelins are not headed off or brought down by our aeroplanes and seaplanes before reaching our shores, this correspondent goes on to venture the following suggestion: "Is it not possible for some of our aeroplanes to be on guard in the air between sunset and sunrise, which at this time of the year only means about six hours' service, and so be prepared to meet the enemy Zeppelins on their approach (instead of on their return) and prevent injury to the town and its inhabitants?"

x x x

Has Mr. Ward, I wonder, made himself familiar with what a six-hours' continuous flight at night would mean? Does he realise that to fly at all in the dark even over a known aerodrome is a feat to be attempted by only the most experienced pilots, and can he imagine what it would be like to cruise about for six hours on end over unknown ground or over the sea, being on the look out for Zeps., and at the same time keeping an eye on one's landmarks? Has he never heard of an aeroplane engine petering out? Such mere details as diving down at the rate of some 60 m.p.h. towards dark Mother Earth, where at that particular place she may be represented by a forest, a wooded field, or even a town, for all the pilot is able to see, evidently do not distress the *Globe* correspondent. One cannot help wishing that it were possible to arrange a little jaunt of this description with Mr. Ward in the passenger's seat. He might then enlighten some of the many self-satisfied armchair querists who indignantly want to know after every air-raid: What are our air-pilots about? Why don't they go up and smash them up? What are they for, anyway? and so forth. Truly, it is a case of fools stepping in, &c., again.

"ÆOLUS."



"MOVING IN" AT THE NEW CHINGFORD AERODROME.—A snap of Flight Lieutenant Merriam off to Hendon on one of his daily trips to fly the school 'buses over.



# THE SCREW PROPELLER.

By F. W. LANCHESTER, M.Inst.C.E.

(Continued from page 380).

25. We will first express the peripteral area in terms of the disc area; on our assumption as to blade length ( $= \frac{1}{3}$  disc diameter), and assuming as usual the peripteral area as that of a circle diameter = span (blade length), we have at once, after allowance of  $1/16$ th disc area as the central "blind" region,

$$\frac{\text{effective disc area}}{\text{peripteral area}} = \frac{15}{16} \times \left(\frac{8}{3}\right)^2 = 6\frac{2}{3}.$$

Now, if  $\theta_2$  be the mean angle of the peripteral axis, that is to say the angle described by the blade centre in its spiral path, the mass of fluid engaged by the disc area, in terms of that engaged by the peripteral area of a single blade, will be  $6\frac{2}{3} \sin \theta_2$ . This expression gives  $N$  the number of blades required for the angle in question in order to fully saturate the propeller stream, in other words the expression in question defines the point at which the number of blades is in theory the least number sufficient to obtain from the disc area the pressure reaction computed on the Newtonian basis; on the other hand, it also defines the point beyond which interference must take place in the event of the actual blade number being in excess. The angle  $\theta_2$  requires to be first calculated from the  $\theta_1$  of maximum efficiency, since the centre of the blade is  $1.25$  further from the axis than the centre of the radius, the latter defining (by our convention) the value  $\theta_1$ . Thus,

$K$ .	$\theta$ maximum efficiency.	$\cot \theta_1$ .	$\cot \theta_2$ .	$\theta_2$ .	$\sin \theta_2$ .	$6\frac{2}{3} \sin \theta_2$ $= N$ .
0.07	43°	1.07	1.34	36° 43'	.6	4.0
0.15	33°	1.54	1.92	27° 30'	.462	3.08
0.2	27°—30'	1.92	2.24	22° 37'	.384	2.58
0.3	22°—20'	2.434	3.04	18° 14'	.315	2.10
0.5	16°—10'	3.45	4.3	13°	.225	1.50
1.0	11°—10'	5.10	6.3	9°	.156	1.04

The  $N$  values of the final column are plotted in Fig. 23 close on the right hand of the axis line, and a curve is drawn which may be said to denote the capacity of the propeller expressed in blades, the curve in this regard relating to the values of diameter and pitch/diameter ratio, given by the single graph on the left hand of the figure.

On the right hand, in place of the single graph representing the disc capacity, we have a number of graphs each representing the capacity of a definite number of blades; these graphs are plotted in accordance with the blade number curve and other dynamical considerations. These separate graphs are drawn not only over the range to which the particular number of blades is appropriate, but also considerably beyond in the direction in which choice of number is permissible: evidently where diameter permits, it may be convenient to employ a two-bladed propeller instead of one of four blades, and not to utilise the whole of the propeller race.

26. A curve of efficiency is given in Fig. 23, so arranged as to be read from the radial lines which correspond to different  $P/D$  ratios; this curve is founded on an estimated average of the portion of the blade utilised, and is not the absolute maximum of the curve as given in Fig. 22, and thus it should more nearly represent the truth. It is found, generally speaking, that these efficiency curves are higher than actual experimental figures, but the author is by no means convinced that this is necessarily the case: there may be losses not properly accounted in the theory as presented, but it may yet turn out that the error does not amount to more than two or three per cent.

By the aid of Fig. 23, the designer is able to select a propeller suited to any given conditions by inspection; he can, for example, when faced with a diameter limit, at once select the best possible  $P/D$  ratio, he can also see at once what falling off in efficiency results from the limitation in question, and thus is in the immediate position to judge whether some modification is necessary in a general design. He can see at a glance what additional diameter is necessitated by a reduction in the number of blades, and, in brief, knows beforehand the general possibilities of design whether the difficulty anticipated be diameter, revolution speed, efficiency, or number of blades.

27. There are many questions both of a general and of a specific character which remain, but which will form the subject of further discussion in Part IV of the paper; the present section concludes the main investigation. Before leaving the subject, a comparison may be instituted between the results embodied in Fig. 23 and those of actual experience.

Firstly, comparison may be instituted with the ordinary practice of marine engineering. There is a rule which is found to apply with very fair exactitude in the case of the slow-going ocean steamer—the propeller disc area is equal to one per cent. of the area of wetted surface. The author has already given this rule in a report

(unpublished) to the Advisory Committee for Aeronautics, and more recently in his James Forrest Lecture (Inst. C.E., 1914); it is not, so far as he is aware, a generally known rule, but it is nevertheless found to correspond with the average of current practice. It obviously ceases to apply, however, if the speed be sufficient to bring in wave-making resistance as a large part of the total, in such cases, in fact, it is actually found that the ratio is considerably higher—1.3 or 1.4 per cent. being not uncommon.

Now the skin-friction coefficient in the case of a large vessel is somewhere in the region of 0.002 (single surface), or  $\xi C = 0.0012$ . On an area 1 per cent. of the total this becomes 0.12 as against  $C = 0.068$  for our propeller of optimum diameter, Fig. 23. Thus, the propeller as ordinarily fitted is, according to our investigation, of less than optimum diameter in the relation  $\sqrt{\frac{0.068}{0.12}} = 0.75$

approximately. This corresponds (Fig. 23) to a  $P/D$  ratio of 1.1 to 1.2 or thereabouts; but this is effective pitch, and we must add, say, 10 per cent. to this in order to bring our expression into line with the usual method of measurement for the blade pitch; we thus obtain a  $P/D$  ratio of from about 1.2 to 1.3, which agrees very well with the best practice. On reference to the chart also we find the indication as to blade number is quite in accordance with established practice. In brief, if we had no experience of screw propulsion and had never seen a screw propeller, we should be able from theory alone to arrive at something not materially different from that which has been achieved by the trial and error of some seventy or eighty years' experience.

As a matter of fact, the aspect ratio on which Fig. 3 is founded is that appropriate to aeronautical design,  $n = 6$ ; if a lower value had been employed, say  $n = 2.5$  or 3, the constant  $C$  for the propeller disc area of optimum efficiency would have been approximately  $= 0.1$ , and the ordinary marine propeller would have proved to have been nearer the optimum condition than appears from the foregoing computation.

The next comparison will be with the author's design of propeller given by way of an illustration in "Aerodynamics," p. 326 (Fig. 139). This was laid out to represent the conditions of best efficiency, hence it is comparable with the optimum of the present investigation. Velocity 70 ft./sec.; dia. 13 ft. = 130 sq. ft. area, and employing the usual expression, and taking  $C = 0.068$  (as in Fig. 23)

$$\text{Thrust (pounds)} = \frac{0.068 \times 0.078 \times 70 \times 70 \times 130}{32.2} = 104 \text{ lb.}$$

against 100 lb. given in the original work.

This example would only be of theoretical interest as showing that the results derived from the author's older method and present method are in agreement, were it not for the fact that the older method has been for some years used by the staff of the Royal Aircraft Factory with conspicuous success.

In brief, so far as the author has been able to test the methods and results of the present investigation by comparison with existing experience and data, it receives the most ample confirmation. There is, without doubt, a great deal of propeller material published which the author has not yet had an opportunity of examining; and a still greater quantity in the hands of naval architects and constructors which has not been published; if the present paper has incidentally the effect of inducing propeller experts in shipbuilding circles to be a little more communicative than in the past it will have served a useful purpose additional to that for which it has been originally written.

## PART IV.—Conclusions and Points not often Discussed.

28. In the plottings given in Fig. 20 we have a number of curves of efficiency, each belonging to a definite restriction defined by some particular value assigned to the constant  $K$ , these curves constituting as it were branches from the curve of unrestricted maximum. The latter curve thus differs from the others inasmuch as its  $K$  value is not constant, but is lower the higher the value of  $\theta$ , that is to say the nearer the axis, and increases progressively as the distance from the axis is increased. It is for this reason that all the curves of  $K = \text{constant}$  tumble into the maximum curve sooner or later. This fact prevents us regarding the maximum curve as definitely part of the series, but more than this, our description of this curve as the curve of  $K = 0.07$  is only accurate at one particular point—the point of maximum, i.e.,  $\theta = 43$  degrees. Strictly speaking, it would perhaps have been better to have termed the curve of maximum efficiency the curve of  $K = \text{optimum}$ . The difficulty which thus exists with regard to a variable  $K$  is due to the necessity for some real blade length; if the problem had been purely academic and the maximum of each curve alone had

been under consideration, the point would not arise. Thus it affects all curves of sufficiently low  $K$  value; in other words, such curves as fall into the maximum curve (the  $K$ -optimum curve) before the end of the blade is reached, and whose  $K$  value, therefore, is not actually constant over its whole length. Owing to the fact that graphic treatment is adopted no inaccuracy is involved; it is, however, impossible to allow the point to pass without comment. In order to best appreciate the conditions, reference should be made to Fig. 16; here the vertical line  $\eta = 0.07$  (approximately) defines the curve  $K$ -optimum, and the iso- $K$  lines running into this

from the right hand of the figure are those proper to the other curves in Fig. 20. Apart from detail considerations it is quite in the usual order of things to find that between the *maximum* condition and the *restricted* condition the continuity is imperfect.

When following through the series of diagrams Figs. 16 to 19, it is helpful to think of Fig. 18 as a projection of Fig. 16 wrapped on a curved surface of the form of the curve of  $\gamma$  values of Fig. 17; this is, in brief, the geometrical meaning of the transformation employed.

(To be concluded.)

## FLYING AT HENDON.

IN spite of the shortage of trams last Saturday afternoon there was a fairly large attendance, and by way of a change the weather was ideal for flying. M. Osipenko opened the proceedings with an exhibition flight on the 50 h.p. G.-W. school 'bus. Marcus D. Manton followed shortly after on the same machine, on which he put up some of his usual stunts. J. S. B. Winter then took over the machine, and contributed his share of the afternoon's entertainment. The next away was E. Baumann, who made a high flight on the 60 h.p. Ruffy-Baumann Caudron. At the same time he was in the air a Naval Caudron (100 h.p. Anzani) was up on high. Shortly after, W. Roche-Kelly came out on the 50 h.p. Beatty biplane, and G. Virgilio ascended on the R.-B. Caudron. Osipenko then took up the 100 h.p. G.-W. five-seater with three passengers on board. After this J. H. Moore made a nice flight on the 45 h.p. L. and P.

biplane, and Baumann made another on the R.-B. Caudron. During the rest of the afternoon the previously mentioned pilots and machines got going several times, and in the evening Manton put in a fine flight with a passenger on the 100 h.p. G.-W. tractor scout. A new chassis has been fitted to this machine, consisting of a pair of tubular steel U members—a neat and strong looking job. He got off after a comparatively short run and climbed very rapidly. The flying speed was certainly high, yet on landing it was well under 50 m.p.h.

Sunday was again favoured with good flying weather, and the following pilots made numerous flights with and without passengers: Marcus D. Manton on the 50 h.p. G.-W. school 'bus and the 100 h.p. G.-W. tractor scout. J. H. Moore on the 45 h.p. L. and P. biplane, J. L. Hall on his 45 h.p. Caudron, W. Roche-Kelly on the 50 h.p. Beatty biplane, and C. B. Prodder on the same machine.

## AIRCRAFT AND THE WAR.

IN a despatch dated May 20th, from Hermann Katsch in the *Berliner Lokal-Anzeiger* describing the fighting round Ypres, there was the following:—

"Every trench and defence work in the enemy's position and our own is carefully drawn on the map after observations and photographs taken by aviators."

Writing from Rome on May 24th, to the *Daily Chronicle*, Mr. M. H. Donohue said:—

"The aerial attack on Venice was supported by a gunboat and destroyers, which took care to keep out of range of the Italian guns. On the Venetian littoral aeroplanes dropped a number of bombs, and attempted to destroy the arsenal, but failed to find their objective. As soon as there was sufficient light to see the hostile aircraft Italian anti-aircraft guns turned upon them, and Italians also ascended in several aeroplanes and in a dirigible. The latter rose high, and then swooped down on the enemy aeroplanes. The Austrians did not wait for an engagement at close quarters, but turned tail and fled, and were chased over the lagoons and out over the blue waters of the Adriatic by the Italian aerial squadron."

"It was an exciting and stern chase. The guns of the Italian aircraft opened fire on the pursued, but the latter dodged and ducked like a covey of wild birds hoping to escape the fowler's shotgun. The Austrians flew out fanshape, bent on escaping at all hazards. One Austrian aeroplane was reported to be winged, but even in its crippled condition it continued its flight."

"An attempt made by Austrian aeroplanes to destroy the aeroplane shed at Jesi, just inland from Ancona, ended in complete failure. The enemy aircraft bolted so quickly, after dropping a few bombs, which fell harmlessly, that Italian airmen who started in pursuit were unable to catch them."

"Simultaneously with the attack on the other towns a raid was made on Rimini, nearly midway between Ravenna and Ancona. A three-funnelled ship was observed approaching, and several other vessels were sighted further out, accompanied by a dirigible."

The *Daily Mail* correspondent in Rome, writing on the 25th, said:—

"Venice now has lighting regulations similar to those in London. On Monday evening excitement ran high in the squares and on the waterways of the city, which was so thronged with gondolas that they looked like a fleet of shadows in the dark. Songs and cries filled the unlighted city, and the population could scarcely persuade themselves to go to bed. Silence reigned only at two o'clock in the morning. Within an hour and a half the sleepers were suddenly

awakened by two strident siren whistles, followed immediately by the boom of cannon and then the continuous report of quick-firers. All Venice got up. It was barely dawn, but the streets were soon filled with excited people watching what was to them the novel sight of a hostile aeroplane coming up from the direction of the great railway bridge escorted by bursting shrapnel."

"The aeroplane flew off unharmed towards Trieste, having dropped bombs on the Corte delle Colonne, at the Castello, in the Rio della Tana, at San Luca, and in the Rio dei Carmini. Four women and one man were hurt by the broken glass. The San Luca bomb was an incendiary one, and covered the ground with petrol. It caused no damage. At five o'clock a second aeroplane followed, and endeavoured to cast two bombs on the bridge connecting Venice with the mainland. They missed and fell in the lagoon. Four other bombs were dropped but in vain. Venice's answer to the bombardment was an outburst of flags, which cover the city to-day, all the Allies' colours being flown."

Mr. A. Beaumont, writing to the *Daily Telegraph* from Rome on May 25th, regarding the bombardment of Ancona by Austrian warships said:—

"Two aeroplanes meanwhile circled over the town at a height of about 6,000ft. The land batteries opened fire on the boats and aeroplanes, and the sky was alive with bursting shells. The destroyers continued firing until 5.10. Finally, several shells exploded over the barracks themselves."

Writing to the *Daily Mail* from Rome on the 26th inst., Mr. J. M. N. Jeffries said:—

"The Italian flag was hoisted on the campanile of San Giorgio, Brazzano [Austrian side of the frontier], the first captured village, which was taken at about 6 a.m. At about 9.30 a.m. an Austrian aeroplane, one of five known to be in a shed between Sagrado and Gorizia [(east bank of the Isonzo)] were seen approaching, showing well against the mountain side. When it was within range the Italian battery fired two shots. The second shot was perfectly aimed and flames shot out from the aeroplane, which swayed and then crashed to earth near the frontier line."

Mr. James Dunn, writing from Rotterdam to the *Daily Mail*, on the 26th, said:—

"The Allies have not been long in attacking the new German railway centre at Ghent. An enterprising raid by aeroplanes has caused extensive damage there."

"The chief objectives of the attack were the St. Pierre (Ghent) railway station and the railway bridge over the Scheldt. This



bridge, which was only built a few years ago, carries practically all the traffic from Bruges and Ostend, and over it run the Berlin and Vienna expresses.

"Well aimed bombs exploded on the main arches and blew a great hole in the bridge. The railway station buildings were wrecked and the lines damaged and also a quantity of stores."

In a message from Boulogne on the 26th ult., a *Daily Telegraph* correspondent said:—

"Enemy airmen have shown considerable activity this morning. A squadron of seven Taubes, according to a wounded soldier, flew over the British position near Festubert at ten o'clock this morning and threw numerous bombs, which, exploding in the air, sent long jets of burning liquid in all directions."

A *Daily Mail* correspondent at Gravelines, west of Dunkirk, writing on the 26th, said:—

"Several German aeroplanes flew over Dunkirk and the neighbouring towns last night. They dropped 10 bombs on Gravelines, 3 near by on Les Huttes, 5 on Leffrinckoucke (east of Dunkirk), 2 on Coudekerque-Branche (north of Bergues), and 2 on Dunkirk. The damage done was not important. Three people were slightly wounded. The fort batteries fired on the machines, which finally withdrew."

From its correspondent at Ostend the *Telegraaf* on the 27th, printed the following:—

"Ostend has been frequently visited by Allied aviators, and many bombs have been dropped, damaging the harbour station and numerous private houses. One of the most deadly raids took place near the post office, where an electric tramcar was hit, some fifty soldiers being killed."

The following details of the French air raid on Ludwigshafen have been sent to the *Koelnische Volkszeitung* by a local correspondent:—

"About 7 a.m. yesterday five or six aeroplanes appeared over Ludwigshafen, the noise of the motors awakening that part of the population which was not yet at work. The weather was calm and clear. When the machines appeared anti-aircraft guns and machine guns opened a vigorous fire. The airmen circled over the town and the Rhine for about twenty-five minutes, and then flew off westward."

"A great number of bombs were thrown, one of which fell in the house of Town Councillor Zeuch in the Friesenheimerstrasse, killing three persons and seriously wounding five, including Herr Zeuch. A second bomb exploded in the Maudacherstrasse, killing three and wounding four persons."

"One of the aircraft is reported to have been compelled to descend near Griesheim owing to a motor defect. Both occupants burned their machine, and were taken prisoners by troops. A great number of bombs were thrown on the aniline and soda factory, five persons being killed and fifteen wounded. Work was not interrupted."

Advices from Copenhagen state that it is semi-officially announced in Berlin that the result of the French raid on Ludwigshafen is that out of eighteen aviators twelve returned to France, two were compelled to land, and four were shot down. No statement is forthcoming as to the damage done at Ludwigshafen.

The Bruges correspondent of the *Telegraaf*, writing last week, said:—

"The Germans established an ammunition depot at Poelcapelle, which was blown up on the 27th by English aviators. The explosion was terrific, and about a hundred Germans were killed and seventy-five injured."

"Yesterday several British aviators flew over Bruges, apparently searching for the German petrol depot. Our pilots have inspired such fear in the Germans that the petrol depot was recently removed at night to a private garden, despite the protests of the owner. The aeroplanes returned safely in spite of a heavy fire."

Writing from Rome on May 28th, to the *Daily Chronicle* Mr. M. H. Donohue said:—

"The Italian dirigible M2 has carried out a successful raid at Sebenico, north of Cattaro, which the Austrians have been using as a base for submarines and destroyers. A number of destroyers were found anchored close together, and the Italian airship launched bombs, putting several of the enemy's destroyers out of action. Fire was opened on the airship by Austrian gunners, but they failed to hit her. The dirigible has since returned to the Italian aerial base, and her commander and crew have been complimented by the authorities for their courage and enterprise."

Writing on May 28th to the *Daily Express* from Geneva regarding the fighting on Lake Garda, Mr. H. Devitte said:—

"Two Austrian airships attempted to bombard the gunboats, but were driven off by their guns."

"The first Austrian aeroplane was brought down before Gorz."

In the report sent out from the German Main Headquarters, on Saturday there was the following:—

"Our airmen threw bombs on the fortified places of Gravelines and Dunkirk and on St. Omer, which is on the enemy lines of communication. Several hits were made at the hostile aerodrome north-west of Fismes."

The local correspondent of the *Messaggero* reported on the 28th that when the Austrian aeroplane appeared over Brindisi, two Italian aviators immediately went up to attack the enemy, who thereupon turned tail and made for Cattaro.

A Central News message from Geneva on Saturday stated:—

"Bombs dropped on Venice yesterday by two Taubes did very little damage. The projectiles appear to have been intended for the St. Mark's Square. One or two fell on some small houses, but the majority fell in the water. The aeroplanes quickly fled when the guns opened on them."

The following details of a fight in the air near Fismes, related by the pilot of the French machine, appeared in the *Matin*:—

"I saw an Albatros coming from the German lines at Laon, making for Château-Thierry and Paris. I gave chase. The German was eight thousand feet up; I rose to nine, and, as I had a faster machine, I rapidly overhauled him. We drew to within thirty feet of the Albatros, but had such way on that we shot right past, and I got a bullet in the shoulder, which, however, did not prevent me from continuing the chase. The Albatros then tried to escape by sinking quickly, but I flew over him and my Lieutenant got in a last volley point blank."

"The Albatros dipped and plunged headlong to the ground six thousand feet beneath. We followed it with our eyes, and saw it strike the earth, crumple up like a ball, and bound along the hillside like a rabbit. We descended in spirals. The pilot had been thrown out, and lay a few yards away. The observer lay crushed under the engine."

"We found papers in his pocket bearing the name of Lieutenant von Bülow, of the Imperial Guard, Berlin. The sight sickened me at first, but when I found ten large bombs and forty grenades on the Albatros I was glad, for I realised that we had been the means of saving the lives of the innocent victims for whom these bombs and grenades had been intended."

It is stated that the French pilot was offered the Legion of Honour or the Military Medal, and chose the latter.

According to information received in Amsterdam on Saturday, a Russian aviator had dropped bombs on the railway station at Johannisberg.

Writing from Stockholm on May 29th, a *Morning Post* correspondent said:—

"Travellers who have arrived here report that Helsingfors has been visited by Zeppelins. Some cotton sheds were said to have been burnt down and one passenger steamer destroyed by bombs."

In a later message he said:—

"It is reported that forty passengers were lost in the fire on board the steamer 'Bore' at Helsingfors."

The Eccloo correspondent of the *Telegraph* reported on Sunday:—

"On the 26th two Allied aviators threw nineteen bombs on the aerodrome at Gartrode, south-east of Ghent, destroying the greater part of the aerodrome. The bombs burst with terrible force, causing the explosion of great quantities of explosives. Forty-four soldiers were killed and some thirty wounded."

"Last Tuesday two aeroplanes appeared above Ghent, reconnoitring, and after a great waste of shells from the anti-aircraft guns, disappeared."

In the official *communiqué* issued in Berlin on Monday it was stated:—

"Near Ostend our coast batteries shot down an enemy airman."

In a message from Rotterdam on Monday the *Daily Mail* correspondent there said :—

"During the Allies' attack north-east of Ypres, Allied airmen flew over the German lines and communications and dropped bombs on magazines and stores and also upon reserve troops. After hovering for some time over Bruges, which is now denuded of troops, the airmen returned in a south-westerly direction.

"Yesterday morning another air raid was made on Zeebrugge. The airmen were met by a hot fire from the anti-aircraft guns. From Cadzand (on the Dutch frontier) many shells were seen bursting, some leaving white puffs of smoke and others black."

In the *Telegraaf* of the 31st ult., there was the following :—

"Last Wednesday 19 bombs were dropped on the aerodrome at Gontrode, south-east of Ghent; the attack was made by two Allied aeroplanes. A French machine was responsible for the first attack, which destroyed part of the shed. The greatest damage, however, was caused by the second attack. Tremendous explosions resulted, and from 60 to 70 German soldiers were struck by the bombs, 44 being killed. When the first attack was delivered seven Taubes and one Zeppelin ascended, but were unable to beat off the second attack. The same evening, at seven o'clock, a second Zeppelin left Gontrode, going westward, this being one of the airships that dropped bombs on Southend."

A *Daily Mail* correspondent at Rome, writing on Monday, said :—

"The Austrian waterplane from Pola (Istria) which was captured near the mouth of the Po di Volano (North-Western Adriatic) had to descend owing to a motor defect. Its pilot and a naval lieutenant were trying to repair it when they were captured by the coastguard. In the machine were bombs weighing 22lb.

"Another Austrian aeroplane was brought down near Rimini (forty-six miles south of the Po River), its petrol tank having been damaged by shot. Its two passengers were made prisoners."



## Last Week's Raid on Southend.

THE raid on the Southend district late on the evening of the 26th ult. was as devoid of success from a military point as the previous raid, although it has unfortunately to be recorded that two innocent lives were lost. The following statement was issued on the following morning by the Admiralty :—

"Late last night a Zeppelin visited the East Coast of England. Bombs were dropped on Southend. The casualties reported up to date are two women killed and one child badly injured. Very little material damage was done. Aeroplanes and seaplanes started in chase, but the Zeppelin succeeded in escaping in an easterly direction."

The Admiralty statement was in error in saying that two women were killed, as it appears that only one—Miss May Fairs—was killed, while another—Mrs. Florence Smith—and a little girl—Queenie Pateman, aged 7—were so seriously injured that the latter died in hospital.

It appears that the airship was sighted about 10.50, and disappeared half-an-hour later after dropping some fifty incendiary bombs on Southend and Leigh. Several of these fell on houses and caused fires which were soon extinguished. One which fell into a bedroom in a house in Broadway Market caused the injuries to Queenie Pateman. At the inquest the verdict was "death from an incendiary bomb dropped from a hostile aircraft." Miss Fairs was killed through being struck by a piece of a shell fired from an anti-aircraft gun, according to the evidence at the inquest, at which the jury returned a verdict of "accidental death caused by a shell fired from an anti-aircraft gun."

In the German wireless there was the following :—

"A successful aerial attack was made on the fortifications of Southend, on the Lower Thames."

## The Victims of the "X" London Raid.

ON Wednesday inquests were held on three victims of the London raid. In the case of Mr. Thomas Henry Good and Mrs. Good the evidence shewed that a bomb fell on to the house, which suddenly burst into flames. The police produced two incendiary bombs found in the basement of the house, one it was explained had fallen through the roof and the front rooms, while the other fell on the staircase and set fire to it. It was thought that all the people had been got out of the house, but apparently Mr. and Mrs. Good were overcome by the fumes.

The jury returned a verdict "that the deceased died from suffocation and burns, having been murdered by some agent of a hostile force."

Writing from Rotterdam to the *Daily Mail* on Tuesday, Mr. James Dunn said :—

"A Zeppelin returning was seen at Sluis at 3 o'clock this morning. It was preceded by an aeroplane, on which the coast anti-aircraft guns started firing under the belief that the aeroplane was attacking the Zeppelin.

"The pilot of the aeroplane exploded a green and red bomb, whereupon the firing ceased."

In the "wireless" news sent out from Berlin on Tuesday there was the following :—

"Enemy aviators last night bombarded Ostend. They damaged some houses, but no other damage is reported."

The *Giornale d' Italia* on Tuesday gave the following details of the raid on Bari :—

"When the biplane appeared over Bari it was flying at a height of 4,500 ft. It flew over the station and tried to drop a bomb on some trains, but missed. The bomb fell in the Palazzo di Tullio and killed a boy, who was sleeping on the pavement. Other bombs fell in the Via Crisanzio, in the suburb of Picone. The aeroplane then rose to a height of 6,000 ft., passed over the wireless station, and flew off towards Brindisi."

In the wireless news from Berlin on Wednesday there was the following :—

"Near Bixschoote, north-east of Steenstraete, we shot down an English aeroplane, capturing two occupants, a Belgian and an English officer."

The following information was received by the *Telegraaf* from its Bruges correspondent :—

"During the night of May 31st–June 1st four Allied airmen again visited Ostend. About two o'clock in the morning heavy gun firing, accompanied by loud explosions of bombs, apparently aimed at the electrical works and the harbour station, was heard. Last night the Allied airmen repeated their visit along the coast."

At the inquest on Elsie Leggett, aged 3, it was stated that a bomb crashed through the roof on to the beds in which five children were sleeping. The father got four of the children away, and thought he had brought them all down. He was badly burned and is in hospital.

The jury returned a verdict that "death was due to suffocation and burns by a fire set up by an incendiary bomb dropped from a hostile airship."

## How to Handle Incendiary Bombs.

IN giving evidence at the inquest on Elsie Leggett, Lieut. Cobbett said that incendiary bombs of the type dropped from German aircraft could be easily picked up with a pair of tongs or a stick or umbrella and thrown out of the window of any room.

## Aerial Duel in the North Sea.

THE following story of a fight between British and German aircraft was given in the Dutch paper *Handelsblad* on Sunday :—

"Passengers on board the Dutch steamer 'Batavier II,' which arrived from England yesterday afternoon, witnessed an extraordinary spectacle. At 8 a.m., when on the high sea, the passengers were called by the stewards. Far away, between the North Hinder and Galloper lightships, two German aeroplanes could be observed dropping bombs on a British steamer. The bombs could be seen clearly falling, but all missed their aim. Suddenly on the horizon arose two black spots, which quickly came nearer. They were two British aeroplanes, which at once attacked the Germans, trying to fly above them. Shots were fired from both sides, but the distance between the enemies gradually grew until the Germans finally disappeared, apparently escaping from their pursuers."

## Dutch Government and German Aviators.

THE Amsterdam correspondent of the *Daily Express*, writing on May 27th, said :—

"The Dutch Government is apparently growing tired of being continually menaced by German airmen overhead, German submarines all round her coasts, and German spies within her territory.

"A German aviator, flying over the island of Ameland, dropped bombs on a Dutch fishing smack flying the national flag, an outrage the gravity of which is not minimised by the fact that the bombs missed their objective and did no damage. The attack took place on May 12th, and has so far been kept secret, but I learn to-day that the Dutch Foreign Secretary has instructed the Netherlands Minister in Berlin to lodge a strong protest with the German Government, and to demand an explanation of the incident."



# Models

Edited by V. E. JOHNSON, M.A.

## Mr. H. Sibley's Gear-Controlled Model.

(Continued from page 327.)

"SINCE my last letter, *re* gear control model," writes Mr. H. Sibley, "I have tested the same, and below I outline the results obtained and certain improvements which have suggested themselves to me.

"1. One point of very bad design on my part soon made itself apparent, that is, in having the propeller shaft placed below the frame; the result causing a severe strain on the top wire, which needed constant attention. I have now refitted the propeller shaft midway between the bowed frame, the strain now being central.

"2. The chassis was also too weak for its work, and I am now fitting the same with a thicker gauge wire. It is necessary to have the chassis extra strong, as when testing the elevator control the machine is sometimes brought to earth in a very abrupt manner.

"3. With seven strands of  $\frac{1}{4}$  strip rubber the model has ample power, and the wind resistance on the control is *very slight*, in fact, in calm weather, the machine could, I think, be got to fly on six strands.

"4. When testing the elevator control it is best to use the same at first with a very small angle (say  $2^\circ$ ) to the horizontal, and gradually increase this until the best angle is found. I am now fitting my model with a smaller tail (12 ins. by 4 ins. semi-circular shape), but still using the same size flap.

"5. *Ailerons* are not necessary, the rudder being sufficient for turning. I found that the *aileron*s counteracted the effect of the rudder to such an extent as to cause a heavy resistance and consequent stalling of the model; if *aileron*s are used, the same should be of very small area.

"6. I am also fitting a larger gear wheel, viz.,  $1\frac{1}{2}$  ins. diameter, 72 teeth. All control wires should be well protected against coming into contact with rubber.

"7. When launching into the wind, it is advisable to do so with the elevator at a positive angle. I still think that in calm weather the model could be got to climb in a more efficient way than is usual with the ordinary type of model.

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## AFFILIATED MODEL CLUBS DIARY AND REPORTS.

Club reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

**N.E. London Model Ae. C. (47, JENNER RD. STOKE NEWINGTON, N.)**

*Monthly Report.*—Several interesting biplanes have been the feature of last month's models. Mr. Lewin with a single-screw tractor, Mr. Cowderoy with a similar type but fitted with built-up fuselage and a twin-screw elevator type biplane, and Mr. Graham also with a twin biplane. The latter has diagonal struts between the planes and upturned lower plane; a well-built model and effective flyer is the result. On May 27th a biplane competition was held, Mr. Graham winning the silver medal with ease. Members are reminded of the tractor biplane competition now impending.

**Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).**

*Monthly Report.*—On May 1st in a moderate wind, R. Bird had out his compressed air tractor monoplane which flew well but appears to be either

"8. In windy weather I think the rudder is best left in one position, as the wind is a serious factor to be reckoned with, and machine is likely to get into difficulties. The model with improvements will be some  $\frac{3}{4}$  oz. heavier, bringing the total weight to 6 $\frac{1}{2}$  ozs.

"9. It is not necessary to set machine for 'stunt' flying (that is, when testing), as my own machine performed one loop, two tail slides, several vertical banks, also nose dives, all on its own, much to my delight (?).

"Summing up, the model when in flight has a very real and 'live' appearance. All controls answer readily, and I think altogether that the model is a step in the right direction."

Let us trust that our correspondent will not rest content until he has taken several more steps in the same direction.

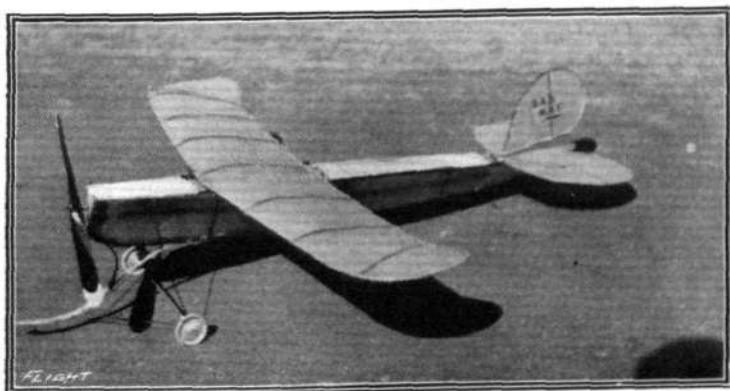
## Rigid versus Flexible Trailing Edge.

Mr. H. W. A. Thorogood writes:—"I have recently carried out some interesting experiments with an r.o.g. tractor rubber-driven monoplane.

"1. The first experiment was carried out with a plane having a rigid trailing edge; when this plane was flying at a good altitude the tail plane was struck underneath by a gust, the result being a sudden dive to earth; during another flight the tail plane was struck by a gust on top which caused the model to stall badly and then sideslip to earth.

"2. The second experiment was carried out with a main plane the same size as that used in my first, but with a flexible trailing edge. When this plane was struck by a gust on the underside of tail, instead of diving to earth it dipped slightly and then recovered. I attribute this to the fact that when the tail was struck on the underside the flexible edge of main plane was also struck and flexed upwards, and so acted as an elevator, causing the head of model to come up quickly after a small dip. I repeated this experiment several times, with the same result. When the tail plane was struck by a gust on top, the model lifted its head slightly and then flew on an even keel; no doubt this was due to the elevator effect of the flexible trailing edge of main plane."

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Photos. by Jas. C. Balden.

**SCOTTISH AERONAUTICAL SOCIETY MODEL AERO CLUB.**—Mr. Guy Pinney's single screw geared tractor. Full particulars of this model appeared in FLIGHT of Feb. 5th and 12th. On the right, Mr. Pinney watching a flight of his model.

underpowered or over-surfaced to combat much wind. H. Woolley flying twin-pusher canard monoplane doing 40 secs. A. Woodbridge tuning up tractor and single-pusher monoplanes. A. Rasmussen flying single-pusher biplane with staggered planes and no elevator or tail. W. Evans tuning up tractor research model. This machine the following week was timed over the 100 ft. course, ten flights (five each way) giving an average speed of 11 m.p.h., the loading being 4½ ozs. per sq. ft. On the 22nd this model was "reversed" and successfully tuned up as a pusher. It is now ready to be timed over the measured course. Stanley Wood has rejoined the club and will produce a compressed air model in due course. The remaining item of note is the successful *debut* made by H. S. Woolley with his compressed air tractor monoplane. The model flew a short distance the first time of launching and promises well for the future. It returned home with the usual broken wing owing to a bad landing through losing momentum flying into rough wind. Members wishing to tune up models during the ensuing month can do so on the temporary flying ground kindly placed at the club's disposal by the President, Mr. A. W. Perkin.

## South-Western Aero Club (373, BRIXTON ROAD, S.W.).

MEETINGS in Brockwell Park every Saturday, and evenings after 7 o'clock during the weeks.

**Monthly Report.**—The first annual general meeting was held on May 8th at the club, and passed off successfully. The report which was read and adopted is as follows:—The club was successfully started in the early part of May of last year. For the first three months until the outbreak of war all went well and most of the flying showed great promise. There were no competitions, but meetings were held practically every week. The meetings were generally held in Brockwell Park, though on occasion when any great durations were expected the models were flown on Wimbledon Common. The prevailing model at that time was the 1-1-0-2-P type. Single screw canard and tractor monoplanes were also in evidence. After the war began all progress was more or less stopped, and the membership was gradually reduced. By February, 1915, all senior members but one had left owing to the war, and there are now 9 members serving with the colours. During the last few months more attention has been paid to tractor models, and considerable progress has been made in this direction. Competitions more or less successful have been held about once every six weeks since July, 1914. The weather always caused great trouble and on several occasions has been the sole cause of an unsuccessful competition. As regards experiments, except flying little has been done. The war put a stop to that. The club's finances are in an excellent condition, with a balance in hand. Everything taken into consideration, the membership of the club is very good, but naturally members are very urgently needed. It was also decided at the meeting that all models made by members of the club will be numbered in future, and recorded in a book. The flying this month has been better both in quantity and quality. Mr. Reid's tractor "R 4" has been the most consistent flyer and has been out two or three times every week, getting an average duration of 25-30 secs. The r.o.g. tractor competition which was to have been held on May 8th was postponed until May 29th owing to the tempestuous weather. As far as numbers went, the result was very unsatisfactory though flying was fairly good on the whole. The result was:—First, Mr. J. W. Reid; second, Mr. R. T. Howse; third, Mr. M. Prodder. Mr. Reid's best timed flight was 35 secs., during which time the model went something over 200 yards. Mr. Howse had continual bad luck and could not tune up his model for some reason not yet discovered, though on occasion it flew quite well. Mr. Prodder's model was underpowered, and would not r.o.g. under its own power. It has been decided to have a competition for construction and design, and not a flying competition, next time. The model will have to fly for a certain period to qualify, but all marks will go for design and construction. It also has another object, to encourage biplanes, for which additional marks are awarded.

## Stony Stratford and District Kite and Model Ae.C. (OLD STRATFORD).

DIARY of Events:—June 19th, members competition tractors single screw. July 17th, members meeting, subject later.

**Monthly Report.**—Owing to the postponement of members meeting an informal committee meeting was held on the ground on April 10th to settle arrears of club business. April 17th, member's competition for r.o.g.'s. Winner, Mr. O. Hamilton, jun., 39½ marks; 2nd, O. Hamilton, jun., 21½; the figures show a great improvement on last year's competition, but are not up to the average of the usual r.o.g. flying. Trial flights were timed during the month for the opening of the April-June duration prize. Flying of a steady nature has been indulged in during the month. Junior efficiency competition closes with Mr. V. Peer winner with 38½ marks. Members general meeting on May 5th. Subject: "Tractors." The wording of class 4A and B has been altered to read "r.o.g. twin propellers." May 13th, members single screw competition. Result, Mr. H. Mennell, 1st, 43½ marks; 2nd, O. Hamilton, jun., 30½; 3rd, Mr. E. Brown, 22½ marks. At the close of the competition two or three of the competitors set out to show the paces of their machines. A duel arose between Mr. Brown and the Secretary for a duration of 40 secs. The Secretary answered Mr. Brown's 30, 34 and 36 secs. with 30, 32, and 34 secs. When Mr. Brown made a dash for 40 secs. and obtained 38½ secs., the Secretary replied with 41½ secs. The best flight by a single was Mr. Mennell's second's competition flight of 48 secs. Mr. Mennell also had a trial for the prize for Tees and the duration prize, raising the figure to 52 secs. May 22nd, Mr. O. Hamilton, jun., out again with his 4 ft. single and attempting the class record, and was successful in raising the figures from 377 yds. to 401 yds., this necessitated a long search in a cornfield. It is pleasing to report that flying that was considered good at the close of last season is now being considered ordinary. May 29th, Mr. Mennell tuning up for class 1 record, but failed to reach the duration figures by 3 secs. and the distance figures by 100 yds., but he was successful in raising the figures for the Tee prize and duration to 58 secs. and which shows that our general flying is better than last season, as the duration competition was won by 62½ secs. a fortnight before its close. Some very light and spruce hollow spar tee-frames are on the stock and we hope to see considerable improvement in our record figures.

## UNAFFILIATED CLUBS.

### Finsbury Park and District (66, ELFORT ROAD, HIGHBURY, N.).

**Monthly Report.**—The past months work has been much brisker than usual owing to the great improvement of the weather, quite a large amount of flying having been done. Mr. F. E. Rayner's c.a. Morane has been out flying h.l. and r.o.g., and a few small smashes have been had owing to a certain lack of rigidity. Mr. B. H. Barnard's Lincoln Beechy mono. has been making remarkably good flights, showing a high degree of stability even when doing stunts. A similar machine flown by Mr. Thomson has also acquitted itself well. Mr. A. Richards has had out a Blériot tractor and a small twin-ruddered mono., both of which have flown well, although the latter has been more interesting owing to the peculiar effect of side winds on the two rudders the machine changes its course several times during flight. Mr. F. E. Rayner's Morane tractor (rubber) has also put up very good flying, both r.o.g. and h.l. Other

members who have been doing good work are Mr. W. Hardinge, Mr. Hex and Mr. Savage (twin screw). Mr. R. Mullin, who has been recovering from wounds for nearly three months, has now rejoined his regiment, and Mr. S. Gibbs has proceeded to Wormwood Scrubs as 1st Air Mechanic, R.N.A.S.

## Liverpool Aero Research Club (62, CEDAR GROVE, LIVERPOOL).

**Monthly Report.**—May proved full of interest, especially as regards the assortment of types engaged, the performances generally being above the average. May 1st was too wet for work, but May 8th gave opportunity, and saw the appearance of a new canard r.o.g. biplane, by G. H. Kilshaw, this machine being novel in regard to driving with twin four-bladed propellers, rising easily first time off, but had to be left owing to mishap to one of the screws, the arrangement looked an exceedingly promising one, the built-up fuselage being a three-member design. On May 15th, besides biplane flying by B. Tear and G. H. Kilshaw, the appearance of a new 4-ft. hollow-spar, 4-ft span canard mono., the joint production of B. Tear and T. W. Bennett, which starting off with a h.l. flight of 50 secs., finished later with a rise-off duration of 55 secs. out of sight. May 22nd, Tear and Bennett out with enclosed fuselage tractor mono., and some extremely good flights with single-surface divided tail mono. at good heights by G. H. Kilshaw, and some very fine flights by V. Barrow's canard. On Whit Monday, the trio Bennett, Kilshaw and Tear, attended the "Pals" (King's Liverpool Regiment), sports at Prescott, and during the sham fight, helped to make things more realistic by model demonstrations with biplane and monoplane canards. May 29th despite heavy showers some good flights were accomplished by the Bennett arrow-plane canard twin, and an early racer by Kilshaw. The biplane flying by these two members had to be cancelled on account of the extremely rough weather.

## Scottish Ae.S. Model Ae.C. (5, DOUNE QUADRANT, GLASGOW).

JUNE 5TH, Paisley Racecourse, C.A. Model. June 12th, waterplane competition at Maxwell Park Pond. June 26th, tractors, &c. at Maxwell Park.

**Monthly Report.**—Another member of the Club is now serving his Country, "Private C. J. Waddell, Army Service Corps." At Maxwell Park on the 15th inst., Messrs. Pinney and Ribbeck flying single screw geared tractors. At Maxwell Park Pond on 22nd inst. the second waterplane competition was held for Col. Sellars' Medal. As no competitor succeeded in doing the minimum duration of 10 secs. the prize has been again withheld.

## A New Japanese Airship.

In a recent issue of the *Japan Daily Mail* particulars were given of the christening of the first dirigible built in Japan entirely from Japanese materials. The airship, of 10,000 cubic metres capacity, is of the Parseval type, the design being the joint work of Major Masuda, Messrs. Iwamoto and Kawamoto and Dr. Tanakadate. After the airship had been named "Yuhi" by the Japanese Naval Minister it went for an hour's cruise with Major Masuda and six passengers on board.

## Cellon, Ltd., Developments.

CONSTANTLY increasing business have necessitated Messrs. Cellon, Ltd., seeking more commodious headquarters, and they have now moved to 9, 10 and 12, Broad Street House, New Broad Street, London, E.C. The telegraphic address remains as before, "Ajawb, Stock, London," and the telephone call is still London Wall 5359.

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